pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0091227**
Facility Type	**Industrial**	APS ID	**1086121**
Major / Minor	**Minor**	Authorization ID	**1486313**

NPDES PERMIT FACT SHEET INDIVIDUAL INDUSTRIAL WASTE (IW) AND IW STORMWATER

Applicant and Facility Information

Applicant Name	**Calgon Carbon Corporation**	Facility Name	**Neville Island Plant**
Applicant Address	200 Neville Road Pittsburgh, PA 15225-1620	Facility Address	200 Neville Road Neville Island, PA 15225
Applicant Contact	David McAdams	Facility Contact	Same as Applicant
Applicant Phone	(412) 787-4793	Facility Phone	Same as Applicant
Applicant email	david.mcadams@kuraray.com	Facility email	Same as Applicant
Client ID	66264	Site ID	3546
SIC Code	2819	Municipality	Neville Township
SIC Description	Manufacturing - Industrial Inorganic Chemicals, NEC	County	Allegheny
Date Application Received	April 4, 2023	EPA Waived?	No
Date Application Accepted		If No, Reason	The EPA review waiver for this facility was revoked in writing on March 22, 2024
Purpose of Application	NPDES Permit coverage renewal		

Summary of Review

Permit history timeline.

The Department received a timely renewal NPDES permit application from Calgon Carbon Corporation on May 8, 2023, for coverage of its manufacturing and reactivation of activated carbon facility located in Neville Township, Allegheny County. The Facility has a SIC Code of 2819 (Industrial inorganic chemicals, NEC) and an NAICS code of 325998 (All other miscellaneous chemical product and preparation manufacturing).

The Department issued a Consent Assessment of Civil Penalty (CACP) on September 29, 2021, due to the multiple exceedances of the effluent limitations from August 2019 to June 2021. Calgon Carbon Corporation has exceeded the effluent limitations 42 times after June 2021. See Attachment A. Operations Compliance Check Summary Report.

On November 29, 2022, the U.S. Environmental Protection Agency (EPA) conducted a site inspection. The focus of the investigation was to conduct on-site process evaluations with emphasis on wastewater and stormwater management, and per- and polyfluoroalkyl substances (PFAS) and related substances in wastewater generation, management, treatment, and effluent discharge, including identification of unauthorized discharges.

On March 22, 2024, the U.S. Environmental Protection Agency (EPA), Region 3 notified the Pennsylvania Department of Environmental Protection (PADEP) that it was terminating its waiver of review for the Calgon Carbon Corporation Neville Island Plant NPDES permit (PA0091227). EPA requested that PADEP submitted to EPA Region 3 for review this draft NPDES permit, in accordance with the procedures established in 40 C.F.R. § 123.44 and the Memorandum of Agreement Regarding the

Approve	Deny	Signatures	Date
X		Angela Rohrer / Environmental Engineering Specialist	February 27, 2025
X		Michael E. Fifth, P.E. / Environmental Engineer Manager	February 28, 2025

Summary of Review

Administration and Enforcement of the National Pollutant Discharge Elimination System (NPDES) in the Commonwealth of Pennsylvania (1991) (MOA) between Pennsylvania and EPA Region 3.

On September 21, 2024, the Department published a notice of draft NPDES permit PA0091227 in the PA Bulletin. The initial comment period was set to expire on October 20, 2024.

On October 10, 2024, pursuant to 40 C.F.R. § 123.44(b)(1), the EPA provided notification of a general objection. This general objection allowed the EPA the full 90-day review period provided by the CWA and the MOA, which expired on December 10, 2024.

On October 18, 2024, pursuant to 25 Pa. Code § 92a.82(d), Calgon Carbon Corporation requested a 15-day extension to provide the Department with the necessary information to support its comments.

On November 22, 2024, following several meetings between PADEP and EPA, EPA provided written comments regarding the Draft permit.

On December 6, 2024, the Pennsylvania Department of Environmental Protection (DEP) withdrew the draft permit, to review comments and make updates. This action was intended to prevent the Environmental Protection Agency (EPA) from issuing a Specific Objection to the draft NPDES permit.

On December 10, 2024, Calgon Carbon Corporation provided written comments regarding the Draft permit.

Description of Industrial Activity:

The Neville Island Plant (NIP) contains two (2) major production functions: The Reactivation Facility and the Cooperite operations.

Reactivation Facility:

Calgon Carbon Corporation's Reactivation Facility receives both RCRA and nonhazardous spent carbons that have been used to remove organic chemicals from customer liquid or vapor streams. Calgon's NIP operations maintain an EPA RCRA Part B Permit allowing for the storage of spent carbon that is classified as a hazardous waste. The carbon is transported in tank trailers containing approximately 20,000 pounds of carbon and 17,000 pounds of pore water. Spent carbon is also returned in small containers such as drums and Calgon Carbon Service units for reactivation. To unload the carbon, the trailer is filled with water and then pressurized with compressed air. The carbon and water are blown into a truck unloading pump and pumped to any one of eight fiberglass storage tanks. Tanks 401, 403, 405, 406, 407, and 408 each hold 112,420 pounds of carbon. Tanks 402 and 404 each hold 92,358 pounds of carbon. Total spent carbon storage capacity in these tanks is 860,000 pounds. Total spent carbon storage capacity in the small containers is 58,000 pounds. Prior to reactivation, spent carbon is stored in tanks 401, 402, 403, 404, 405, 406, 407, and 408. The carbon is then pumped from these tanks to a reactivation furnace. Through careful control of the temperature and gas composition, the carbon is reactivated in a multi-hearth furnace. After the carbon exits the furnace, it is cooled and transported to the new product silos for truck loading or to the bulk bag loading bin for packaging. The reactivated carbon is reusable and is sold for use in a wide range of applications. The off gases from the reactivation furnace contain fine particulate matter, products of combustion from the burning of natural gas, vaporized pore water, and possibly devolatilized organic chemicals. The control system involves routing emissions to a series of control devices including a cyclone, afterburner, sorbent injection, and baghouse. The cyclone is designed to remove larger particulates from the air stream prior to entering into the afterburner. The Afterburner is designed to thermally destroy volatile organic compounds (VOC) in the emissions stream. After the afterburner, a sorbent (lime) is injected into the stream to remove acid gas pollutants, including sulfur dioxide (SO2), hydrogen fluoride (HF), and hydrogen chloride (HCl). The baghouse removes the particulate generated from the process. After particulate removal, the cleaned gas is vented to the atmosphere. The Reactivation Facility produces three RCRA waste streams: 1) excess water used to slurry the spent carbon for truck and small container unloading or for transfer to the furnace, 2) filter cake generated when carbon fines are filtered from the slurry water, and 3) fines from the reactivation system dust collector which are classified as hazardous.

Summary of Review

Cooperite:

In the Cooperite operations, virgin carbon is saturated with an aqueous ammonia solution that may contain copper, silver, and molybdenum. This mixture is fed to an indirect fired rotary kiln or fluid bed dryer where the water and ammonia are driven off. These off-gases are filtered through a dust collector where any entrained particulate matter is removed. After drying, the impregnated carbon is screened to ensure the proper size distribution.

Raw materials used at the Plant:

- Anhydrous Ammonia – Received by tanker truck and stored in a pressure-rated 1,250-gallon tank equipped with emergency pressure relief valves.
- Aqueous ammonia (19%) May also be shipped to the plant by tanker truck and stored in two 6,350-gallon process water tanks at atmospheric pressure.
- Silver Nitrate - 5-gallon drums and stored in the solution making area.
- Zinc oxide - 25 kg sacks and stored inside, near the Cooperite building.
- Copper carbonate - 50-pound bags and stored inside, near the Cooperite building
- TEDA,- 11-pound plastic bags and stored inside, near the Cooperite building
- Molybdenum - 212-pound fiber drums and stored inside, near the Cooperite building

PFAS State and Federal Regulatory Considerations

PFAS have been manufactured and used in a variety of industries in the United States and around the globe since the 1940s, and they are still being used today. Because of the duration and breadth of use, PFAS can be found in surface water, groundwater, soil, and air—from remote rural areas to densely-populated urban centers. A growing body of scientific evidence shows that exposure to small levels of PFAS can adversely impact human health and other living things. Despite these concerns, PFAS are still used in a wide range of consumer products and industrial applications. PFAS are synthesized for many different uses, ranging from firefighting foams to coatings for clothes and furniture, to food contact substances. Many PFAS are also used in industrial processes and applications, such as in the manufacturing of other chemicals and products[1].

On December 5, 2022, EPA issued a memorandum providing guidance to states for addressing PFAS discharges when they are authorized to administer the NPDES permitting program and/or pretreatment program. EPA recommends that monitoring include each of the 40 PFAS parameters detectable by draft method 1633 (*EPA Method 1633 was finalized in January 2024)* and be conducted at least quarterly to ensure that there are adequate data to assess the presence and concentration of PFAS in discharges. See attachment C.

In February 2024, DEP implemented a new monitoring initiative for PFAS that provides guidance to permit writers for addressing PFAS discharges.

In accordance with Section II.I of DEP's "Standard Operating Procedure (SOP) for Clean Water Program – Establishing Effluent Limitations for Individual Industrial Permits" [SOP No. BCW-PMT-032] and under the authority of 25 Pa. Code § 92a.61(b), DEP has determined that monitoring for a subset of common/well-studied PFAS including Perfluorooctanoic acid (PFOA), Perfluorooctanesulfonic acid (PFOS), Perfluorobutanesulfonic acid (PFBS), and Hexafluoropropylene oxide dimer acid (HFPO-DA) is necessary to help understand the extent of environmental contamination by PFAS in the Commonwealth and the extent to which point source dischargers are contributors. SOP BCW-PMT-032 directs permit writers to consider special monitoring requirements for PFOA, PFOS, PFBS, and HFPO-DA in the following instances:

a. If sampling that is completed as part of the permit renewal application reveals a detection of PFOA, PFOS, HFPO-DA or PFBS (any of these compounds), the application manager will establish a quarterly monitoring requirement for PFOA, PFOS, HFPO-DA and PFBS (all of these compounds) in the permit.

b. If sampling that is completed as part of the permit renewal application demonstrates non-detect values at or below the Target QLs for PFOA, PFOS, HFPO-DA and PFBS (all of these compounds in a minimum of 3 samples), the

[1] USEPA, PFAS Strategic Roadmap: EPA's Commitments to Action 2021-2024, October 2021.
PFAS Strategic Roadmap: EPA's Commitments to Action 2021—2024

Summary of Review

application manager will establish an annual monitoring requirement for PFOA, PFOS, HFPO-DA and PFBS in the permit.

In September 2024, EPA published final national recommended water quality criteria and benchmarks to help states and authorized Tribes protect aquatic ecosystems from several PFAS[2].

For perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS), the EPA published final recommended freshwater criteria for short-term (acute) and long-term (chronic) exposure, as well as saltwater benchmarks for acute exposures. The EPA also developed separate acute freshwater benchmarks for eight data-limited PFAS:

1) perfluorobutanoic acid (PFBA)
2) perfluorohexanoic acid (PFHxA)
3) perfluorononanoic acid (PFNA)
4) perfluorodecanoic acid (PFDA)
5) perfluorobutanesulfonic acid (PFBS)
6) perfluorohexanesulfonic acid (PFHxS)
7) hexadecafluoro-2-decenoic acid (8:2 FTUCA)
8) pentadecafluorodecanoic acid (7:3 FTCA)

The EPA develops national recommended aquatic life ambient water quality criteria for pollutants under Section 304(a)(1) of the Clean Water Act to provide information that states, and authorized Tribes can use when adopting water quality standards.

States and authorized Tribes must adopt water quality criteria into their standards that protect the designated uses of their water bodies, including the use of those waters by aquatic life.

The EPA's final recommended aquatic life criteria documents provide a critical review of PFOA and PFOS toxicity data and provide separate PFOA and PFOS criteria to help protect aquatic life from the effects of these chemicals. Table 1 provides a summary of the criteria components.

Table 1: Final Recommended Freshwater Aquatic Life Water Quality Criteria for PFOA and PFOS

Criteria Component	Acute Water Column (CMC)[1] (mg/L)	Chronic Water Column (CCC)[2] (mg/L)	Invertebrate Whole-Body (mg/kg ww[3])	Fish Whole-Body (mg/kg ww[3])	Fish Muscle (mg/kg ww[3])
PFOA Magnitude	3.1	0.10	1.18	6.49	0.133
PFOS Magnitude	0.071	0.00025	0.028	0.201	0.087
Duration	1-hour average	4-day average	Instantaneous	Instantaneous	Instantaneous
Frequency	Not to be exceeded more than once in three years, on average	Not to be exceeded more than once in three years, on average	Not to be exceeded	Not to be exceeded	Not to be exceeded

[1] Criterion Maximum Concentration.
[2] Criterion Continuous Concentration.
[3] Wet Weight.

To date, PA DEP has not adopted EPA's PFOA/PFOS criteria into its 25 PA Code Chapter 93 regulations. The Department did however evaluate Calgon's Outfall 001 discharges against the new federal criteria to determine if there are any impacts which would trigger effluent limitations under the Federal criteria in the future. Based on the TMS analysis, Water Quality-Based Effluent Limits (WQBELs) would not be applicable for PFOA and PFOS at this time.

[2] USEPA, Final Recommended Aquatic Life Criteria and Benchmarks for Select PFAS, September 2024
*Fact Sheet: Final Recommended Aquatic Life Criteria and Benchmarks for Select PFAS

Summary of Review

PFAS Facility Background

The EPA's inspection included sample collection and analysis for 75 PFAS compounds, covering 34 of the 40 compounds listed in Method 1633. According to the EPA's memorandum, the detection of these 34 compounds will be considered when establishing monitoring requirements. Based on the inspection report, there were detection of PFAS in the groundwater, city water that is used at the main plant, the non-hazardous spent GAC, four Outfalls (001, 002, 005 and 006) and two Internal Monitoring Points (IMP 101 and IMP 102).

Table 2: PFAS Analysis Results (Based on EPA Method 1633)

Analyte	Value (ng/L)				
	SP-13	SP-14	SP-11	SP-04	SP-02
	Outfall 001	Outfall 002	Outfall 005	Outfall 006	Roof drain near to Outfall 001 (Outfall 008)
6:2 FTS	-	4.0 J	7.5	--	-
HFPO-DA (GenX)	35	180	290	2100	25
PFBS	3.4	15	27	7	0.93 J
PFBA	6.1	13	24	23	11
PFHpS		0.76 J	1.5 J	-	-
PFHpA	1.4 J	5.3	8.8	5.3	0.74 J
PFHxS	7.9	22	40	1.2 J	-
PFHxA	4.1	25	41	17	3.5
PFNA	0.72 J	1.4 J	2.9	2	-
PFOSA	-	-	-	0.78 J	0.70 J
PFOS	7.6	27	43	3.4	-
PFOA	5.3	11	19	20	1.4 J
PFPeS	1.7	10	18	0.46 J	-
PFPeA	8.6	21	37	99	1.6 J
PFTrDA	-	-	-	0.50 J	-
PFUnA	-	-	-	0.71 J	-

J: Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Section II.I of the Pennsylvania Department of Environmental Protection's (DEP) Standard Operating Procedure (SOP) for Clean Water Program - New and Reissuance Industrial Waste and Industrial Stormwater Individual NPDS Permit Applications [SOP No. BCW-PMT-001], states that "where there are detections of PFOA, PFOS, PBFS, or HFPO-DA in the application screening analysis or where it is known that materials or wastes containing PFAS were or are used, stored, or disposed of at the facility, the Department will include Part C Condition 140, PFAS Reduction Plan, in the permit."

This provision applies to this Calgon facility due to the following:

1. There have been detections of PFAS parameters at Calgon's various outfalls.

2. There is known handling of materials containing PFAS at the facility.

3. There is insufficient information provided to date regarding the materials containing PFAS.

Summary of Review

As a result, the DEP proposes inclusion of Part C Condition IV, PFAS Reduction Plan and Annual PFAS Reduction Report, in the permit to ensure the facility takes necessary measures to reduce PFAS levels in its discharges. The PFAS Reduction Plan should summarize effluent data for each of the 40 PFAS parameters and actions taken to reduce PFAS discharges during the previous calendar year from Calgon's surface water discharges.

Additionally, the DEP proposes supplemental monitoring for 40 PFAS parameters detectable using United States Environmental Protection Agency (EPA) Method 1633. The permittee is required to conduct a minimum number of sampling events. However, performing additional sampling events beyond the minimum requirement is highly recommended, as it may provide valuable information and support the development of Calgon's comprehensive PFAS Reduction Plan.

PAG-03 NPDES General Stormwater Permit Updates

The PAG-03, NPDES General Stormwater Permit was updated in 2022, incorporating several key changes. These updates include mandatory monitoring for Total Nitrogen (TN) and Total Phosphorus (TP) across all appendices. Additionally, benchmark values of 3.0 mg/L for Nitrate-Nitrite and 9.0 S.U. for pH were established for all instances where monitoring is required.

It should be noted that the benchmark for pH was not established as a range between 6.0-9.0 S.U. due to the presence of atmospheric deposition (acid rain) in Pennsylvania. Acidic rain has been well documented in western Pennsylvania for a number of decades. Though emissions from within Pennsylvania are significant, atmospheric pollution is also attributed to the state's geographic setting downwind of major stationary emissions sources in the heavily industrialized Midwestern USA (USEPA 2009). Data from the National Atmospheric Deposition Program reveals that the precipitation-weighted mean concentrations for pH in Pennsylvania range from 5.3 to 5.5 S.U. As a result, it is not uncommon for stormwater pH results to be less than 6.0 S.U. Due to these well documented conditions, the Department did not impose a lower bound pH limit of 6.0 S.U. for Calgon's stormwater discharges because precipitation in western Pennsylvania routinely fails to meet that standard.

The NPDES permit authorizes discharges through Outfalls 001, 002, 005, 006 and 007 to the back channel of Ohio River designated in the 25 PA Code Chapter 93 as having a protected use for Warm Water Fishes (WWF). During the EPA's inspection, two new Outfalls were identified. Calgon Carbon Corporation provided an updated application on February 22, 2024, including sample data, location and description of these two new Outfalls.

The client has no open violations.

Draft Permit issuance is recommended.

Public Participation

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the Pennsylvania Bulletin in accordance with 25 Pa. Code § 92a.82. Upon publication in the Pennsylvania Bulletin, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the Pennsylvania Bulletin at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001 (IMP 101)	Design Flow (MGD)	0.394
Latitude	40º 29' 30.32"	Longitude	-80º 04' 43.79"
Quad Name	Pittsburgh West	Quad Code	1505
Wastewater Description:	Non-contact cooling water, cooling tower blowdown, steam condensate, and stormwater		
Receiving Waters	Ohio River (WWF)	Stream Code	32317
NHD Com ID	134396130	RMI	974.71
Drainage Area	19,400	Yield (cfs/mi^2)	0.121
Q_{7-10} Flow (cfs)	2,365	Q_{7-10} Basis	US Army Corp of Engineers
Elevation (ft)	710	Slope (ft/ft)	0.0008
Watershed No.	20-G	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Pathogens, Polychlorinated Biphenyls (PCBS), Dioxin		
Source(s) of Impairment	Source Unknown		
TMDL Status	Final	Name	Ohio River TMDL
Nearest Downstream Public Water Supply Intake	Robinson Township Municipal Authority (7.2 MGD)		
PWS Waters	Ohio River	Flow at Intake (cfs)	4,730
PWS RMI	971.46	Distance from Outfall (mi)	3.21

Other Comments:

Outfall 001

Observation 9 from the EPA's inspection report states "Outfall 001 – Calgon's compliance monitoring point for Outfall 001 does not include all flow through Outfall 001. Calgon's compliance monitoring point for Outfall 001 was located in the main plant, prior to the discharge point to the Ohio River. The inspection team observed that discharge point for Outfall 001 to the Ohio River consisted of flow from two pipes, one for the flow from the compliance monitoring point and one with flow of NCCW from the Cooperite process that is not captured by the compliance monitoring point".

The facility confirmed that the sample location was moved on October 12, 2023 to capture the combined flow from both pipes on all future sample events required under the NPDES permit. On March 28, 2024 the facility provided an updated Water Flow Diagram and indicated that the Whetlerite Cooling Screw no longer exists.

IMP 101

Observation 9 from the EPA's inspection report states "Internal Outfall 101 – The main plant NPDES permit indicates that this internal outfall discharges only stormwater; however, the inspection team observed contributions of NCCW from an air compressor flowing into the sump from which Calgon takes compliance monitoring samples. The main plant NPDES permit does not authorize discharges of non-stormwater through this internal outfall".

The facility confirmed that this water flow is from the water well, water line freeze protection and is low enough that it can be contained during a sampling event so that the sample collected only contains stormwater. The sampling procedure has been updated to include this requirement.

Mr. David McAdams stated "The purpose is to protect the valve and line where the two wells connect. The horizontal pipe and valve in the middle of the photo are what we are trying to protect from freezing. It is heat traced but it could fail, and it

would be catastrophic loss of that pipe. This valve is between Well Pump No. 1 and Well Pump No. 2. There is 1-inch valve and 1-inch red hose on the right side of the valve. That valve open allows water to flow to keep it from freezing.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	002 (IMP 102)	Design Flow (MGD)	0.250
Latitude	40º 29' 30.26"	Longitude	-80º 04' 43.46"
Quad Name	Pittsburgh West	Quad Code	1505
Wastewater Description:	Noncontact Cooling Water (NCCW), steam condensate, Stormwater		
Receiving Waters	Ohio River (WWF)	Stream Code	32317
NHD Com ID	134396130	RMI	974.72
Drainage Area	19,400	Yield (cfs/mi^2)	0.121
Q_{7-10} Flow (cfs)	2,365	Q_{7-10} Basis	US Army Corp of Engineers
Elevation (ft)	710	Slope (ft/ft)	0.0005
Watershed No.	20-G	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Pathogens, Polychlorinated Biphenyls (PCBS), Dioxin		
Source(s) of Impairment	Source Unknown		
TMDL Status	Final	Name	Ohio River TMDL
Nearest Downstream Public Water Supply Intake	Robinson Township Municipal Authority (7.2 MGD)		
PWS Waters	Ohio River	Flow at Intake (cfs)	4,730
PWS RMI	971.46	Distance from Outfall (mi)	3.21

Other Comments:

Outfall 002

Observation 4 from the EPA's inspection report states "The inspection team observed an unidentified concrete pipe located along the bank of the Ohio River between the Outfall 002 and Outfall 006 discharge structures".

The facility confirmed that the unidentified concrete pipe is the former outfall from roof drains that were rerouted during the plant upgrade in 2018 to remove the safety hazard of having to climb down a rocky, vegetated hill during a rain event to collect a stormwater sample.

IMP 102

Observation 9 from the EPA's inspection report states "The main plant NPDES permit indicates that this internal outfall receives only stormwater; however, the inspection team observed contributions of NCCW and water from multiple other unidentifiable pipes to the compliance monitoring point for internal Outfall 102. Calgon representatives indicated two of these lines were flows historically identified as Outfalls 003 and 004, which were formerly permitted for stormwater from roofs; however, the inspection team was unable to confirm flow contributions from these in addition to the other pipes of unknown origin. The main plant NPDES permit does not authorize discharges of non-stormwater through this internal outfall"

Facility response: All of the hoses going into the standpipe have been confirmed to be NCCW from compressors. It was determined after the EPA site inspection that the roof drains that discharged to Outfalls 003 and 004 were routed to a different PVC downspout. Sheet flow across the concrete prior to the entry into the storm drain was sampled for the permit renewal in March 2023 and will be used for all future stormwater sampling events.

All NCCW and cooling screw are combined prior to and then sampled at 002.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	005 (IMP 105)	Design Flow (MGD)	0.031
Latitude	40º 29' 30.78"	Longitude	-80º 04' 44.01"
Quad Name	Pittsburgh West	Quad Code	1505
Wastewater Description:	Steam condensate, reverse osmosis reject, Stormwater		

Receiving Waters	Ohio River (WWF)	Stream Code	32317
NHD Com ID	134396130	RMI	974.7
Drainage Area	19,400	Yield (cfs/mi^2)	0.121
Q_{7-10} Flow (cfs)	2,365	Q_{7-10} Basis	US Army Corp of Engineers
Elevation (ft)	710	Slope (ft/ft)	0.0008
Watershed No.	20-G	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Pathogens, Polychlorinated Biphenyls (PCBS), Dioxin		
Source(s) of Impairment	Source Unknown		
TMDL Status	Final	Name	Ohio River TMDL

Nearest Downstream Public Water Supply Intake	Robinson Township Municipal Authority (7.2 MGD)		
PWS Waters	Ohio River	Flow at Intake (cfs)	4,730
PWS RMI	971.46	Distance from Outfall (mi)	3.21

Other Comments:

Due to the multiple effluent limitation exceedances for Total Manganese, the water softener backwash from the boiler water treatment is diverted now to ALCOSAN, because the facility discovered that is where the high manganese levels were coming from. Boiler blowdown and reverse osmosis water still discharge to 005.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	006	Design Flow (MGD)	0
Latitude	40º 29' 30.24"	Longitude	-80º 04' 38.16"
Quad Name	Pittsburgh West	Quad Code	1505
Wastewater Description:	Stormwater		

Receiving Waters	Ohio River (WWF)	Stream Code	32317
NHD Com ID	134396130	RMI	974.79
Drainage Area	19,400	Yield (cfs/mi^2)	0.121
Q_{7-10} Flow (cfs)	2,365	Q_{7-10} Basis	US Army Corp of Engineers
Elevation (ft)	710	Slope (ft/ft)	0.0001
Watershed No.	20-G	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Pathogens, Polychlorinated Biphenyls (PCBS), Dioxin		
Source(s) of Impairment	Source Unknown		
TMDL Status	Final	Name	Ohio River TMDL

Nearest Downstream Public Water Supply Intake	Robinson Township Municipal Authority (7.2 MGD)		
PWS Waters	Ohio River	Flow at Intake (cfs)	4,730
PWS RMI	971.46	Distance from Outfall (mi)	3.21

Other Comments:

Observation 3 from the EPA's inspection report states "The inspection team observed multiple steam condensate lines off the roof of the trailer containing a boiler (located next to the trailer containing the RO unit) that were discharging steam condensate into a stormwater ditch leading to the retention basin associated with Outfall 006. Outfall 006 is only permitted under the main plant NPDES permit for discharges of stormwater and is not authorized for discharges of steam condensate. The regulations at 40 CFR § 122.1(b) require permit coverage for this discharge"

Facility response: These condensate lines were piped to the boiler discharge sump that collects boiler blowdown on January 17, 2023.

Observation 9 from the EPA's inspection report states "Calgon's compliance monitoring point for Outfall 006 was the discharge structure from the stormwater retention basin that is located approximately 800 ft to the north of the Outfall 006 discharge structure to the Ohio River. The inspection team observed open storm drains located in the path between the retention basin and Outfall 006 structure at the river. Calgon representatives indicated they were unaware of any additional contributions to Outfall 006 between the compliance monitoring point in the retention basin and the outfall discharge structure at the river; however, Calgon was unable to confirm this with documentation"

The facility confirmed that the correct sample location was determined during the EPA inspection using a map found related to the construction of the Neville North Property. This sample point is south of the retention basin and includes flow from all catch basins referenced by EPA. This correct location was sampled for the permit renewal in March 2023 and is marked for all future stormwater sampling events.

Infiltration Basin 1. (40° 29’ 37.54”, -80° 04’ 36.90”).

Discharge, Receiving Waters and Water Supply Information

Outfall No.	007	Design Flow (MGD)	0
Latitude	40º 29' 30.77"	Longitude	-80º 04' 32.08"
Quad Name	Pittsburgh West	Quad Code	1505
Wastewater Description:	Stormwater		

Receiving Waters	Ohio River (WWF)	Stream Code	32317
NHD Com ID	134396120	RMI	974.72
Drainage Area	19,400	Yield (cfs/mi^2)	0.121
Q_{7-10} Flow (cfs)	2,365	Q_{7-10} Basis	US Army Corp of Engineers
Elevation (ft)	710	Slope (ft/ft)	0.0001
Watershed No.	20-G	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Pathogens, Polychlorinated Biphenyls (PCBS), Dioxin		
Source(s) of Impairment	Source Unknown		
TMDL Status	Final	Name	Ohio River TMDL

Nearest Downstream Public Water Supply Intake	Robinson Township Municipal Authority (7.2 MGD)		
PWS Waters	Ohio River	Flow at Intake (cfs)	4,730
PWS RMI	971.46	Distance from Outfall (mi)	3.21

Other Comments:

Observation 3 from the EPA's inspection report states "Observation 11 The inspection team observed that the Outfall 007 stormwater retention basin had a rock-lined conveyance that would allow stormwater to flow directly into the retention basin discharge structure based on the grading of the rocks, as opposed to into the retention basin itself. Stormwater that flows directly into the discharge structure does not receive treatment from the retention basin"

Facility response: The design purpose of the retention basin is to retain water during a storm event through limiting outlet flow and to allow for settling of suspended solids where required. According to plant personnel no water collects in this basin, even during large rain events. This area is a flat permeable gravel with the rock lined conveyance further reducing velocity of any flow entering the basin.

Infiltration Basin 2. (40° 29' 33.31", -80° 04' 33.82").

Discharge, Receiving Waters and Water Supply Information

Outfall No.	008	Design Flow (MGD)	0
Latitude	40º 29' 31.5"	Longitude	-80º 04' 44.5"
Quad Name	Pittsburgh West	Quad Code	1505
Wastewater Description:	Stormwater		

Receiving Waters	Ohio River (WWF)	Stream Code	32317
NHD Com ID	134396120	RMI	974.6
Drainage Area	0.4	Yield (cfs/mi^2)	6.0
Q_{7-10} Flow (cfs)	2,400	Q_{7-10} Basis	US Army Corp of Engineers
Elevation (ft)		Slope (ft/ft)	0.0001
Watershed No.	20-G	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Pathogens, Polychlorinated Biphenyls (PCBS), Dioxin		
Source(s) of Impairment	Source Unknown		
TMDL Status	Final	Name	Ohio River TMDL

Nearest Downstream Public Water Supply Intake	Robinson Township Municipal Authority (7.2 MGD)		
PWS Waters	Ohio River	Flow at Intake (cfs)	4,730
PWS RMI	971.46	Distance from Outfall (mi)	3.2

Other Comments:

This Outfall was added to the permit application due to the Observation 4 from the EPA's inspection report which states "The inspection team observed two roof drains leading from the roof of the combined Cooperite/Whetlerite building to the banks of the Ohio River and not through a main plant NPDES-permitted outfall. These gutters were discharging stormwater on the second day of the inspection (11/30/2022) during a rain event."

Discharge, Receiving Waters and Water Supply Information

Outfall No.	009	Design Flow (MGD)	0
Latitude	40º 29' 31.4"	Longitude	-80º 04' 43.3"
Quad Name	Pittsburgh West	Quad Code	1505
Wastewater Description:	Stormwater		

Receiving Waters	Ohio River (WWF)	Stream Code	32317
NHD Com ID	134396120	RMI	974.73
Drainage Area	0.4	Yield (cfs/mi^2)	6.0
Q_{7-10} Flow (cfs)	2,400	Q_{7-10} Basis	US Army Corp of Engineers
Elevation (ft)		Slope (ft/ft)	0.0001
Watershed No.	20-G	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Pathogens, Polychlorinated Biphenyls (PCBS), Dioxin		
Source(s) of Impairment	Source Unknown		
TMDL Status	Final	Name	Ohio River TMDL

Nearest Downstream Public Water Supply Intake	Robinson Township Municipal Authority (7.2 MGD)		
PWS Waters	Ohio River	Flow at Intake (cfs)	4,730
PWS RMI	971.46	Distance from Outfall (mi)	3.21

Other Comments:

This Outfall was added to the permit application due to the Observation 4 from the EPA's inspection report which states "The inspection team observed two roof drains leading from the roof of the combined Cooperite/Whetlerite building to the banks of the Ohio River and not through a main plant NPDES-permitted outfall. These gutters were discharging stormwater on the second day of the inspection (11/30/2022) during a rain event."

Development of Effluent Limitations

Outfall No.	001 (IMP 101)	**Design Flow (MGD)**	0.394
Latitude	40º 29' 30.32"	**Longitude**	-80º 04' 43.79"

Wastewater Description: Non-contact cooling water, cooling tower blowdown, steam condensate, and stormwater

Technology-Based Effluent Limitations (TBELs)

Regulatory Effluent Standards and Monitoring Requirements

Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1).

Temperature limits will be imposed per the Department's "*Implementation Guidance for Temperature Criteria*." As a policy, DEP normally imposes a maximum temperature limit of 110°F on discharges that contain residual heat. The limit is intended as a safety measure to protect sampling personnel or anyone who may come into contact with the heated discharge where it enters the receiving water.

Pennsylvania regulations at 25 Pa. Code § 92a.48(b) require the imposition of technology-based TRC limits for facilities that use chlorination and that are not already subject to TRC limits based on applicable federal ELGs or a facility-specific BPJ evaluation. Calgon does not use chlorine in any form in the facility. Total residual chlorine levels were detected in the effluent at 0.02 mg/L. This level is far below the Department's regulatory standard of 0.5 mg/L which would apply to discharges into the Ohio River. Therefore, effluent limitations/monitoring of TRC and/or free chlorine will not be required.

Effluent standards for pH are also imposed on industrial wastes by 25 Pa. Code § 95.2(1) as indicated in Table 3.

Table 3: Regulatory Effluent Standards and Monitoring Requirements for Outfall 001

Parameter	Monthly Average	Daily Maximum	IMAX	Units
Flow	Monitor and Report		XXX	MGD
Temperature	XXX	XXX	110	°F
pH	Not less than 6.0 nor greater than 9.0			S.U.

Per- and Polyfluoroalkyl Substances (PFAS)

The sample collected during the site inspection was tested for 34 out of the 40 PFAS compounds specified in Method 1633, and the results indicated the presence of 11 PFAS compounds at Outfall 001. Based on the latest Department's procedures and consistent with the EPA's December 5, 2022 Memorandum, monitoring requirements for each of the 40 PFAS parameters that can be analyzed and reported under EPA method 1633 will be imposed at Outfall 001.

Oil and Grease

In accordance with Section I.C.2 of DEP's "Standard Operating Procedure (SOP) for Clean Water Program – Establishing Effluent Limitations for Individual Industrial Permits" [SOP No. BCW-PMT-032] and under the authority of 25 Pa. Code § 95.2(2)(ii), DEP has determined that if the maximum concentration of Oil and Grease in the discharge is 4 mg/L or greater, monitoring requirement should be established. The concentration reported in the application for Oil and Grease at Outfall 001 is 5.6 mg/L, therefore, monthly reporting of Oil and Grease will be required.

Water Quality-Based Effluent Limitations

Total Maximum Daily Load TMDL

The receiving section of the Ohio River has a TMDL for PCB and Chlordane due to a fish advisory since 1979. Calgon does not discharge PCB and Chlordane to the section of concern of the Ohio River, and therefore, the TMDLs will not be applied to Calgon's stormwater discharge. Part C18 condition will be added to the permit that states, "There shall be no discharge of polychlorinated biphenyl (PCB) compounds such as those commonly used for transformer fluid at any time".

In 1988, all chlordane uses, except its use for fire ant control in power transformers, were voluntarily canceled in the United States. Chlordane still can be legally manufactured in the US, but it can only be sold to or used by foreign countries. Although

chlordane can be used to control fire ants in the US, no products are currently registered for this use. Therefore, no special Part C condition for Chlordane is needed.

Toxics Management Spread Sheet

The Department of Environmental Protection (DEP) has developed the DEP Toxics Management Spreadsheet ("TMS") to facilitate calculations necessary for completing a reasonable potential (RP) analysis and determining water quality-based effluent limitations for discharges of toxic pollutants. The Toxics Management Spreadsheet is a macro-enabled Excel binary file that combines the functions of the PENTOXSD model and the Toxics Screening Analysis spreadsheet to evaluate the reasonable potential for discharges to cause excursions above water quality standards and to determine WQBELs. The Toxics Management Spread Sheet is a single discharge, this-balance water quality calculation spread sheet that includes consideration for mixing, first-order decay and other factors to determine recommended WQBELs for toxic substances and several non-toxic substances. Required input data including stream code, river mile index, elevation, drainage area, discharge name, NPDES permit number, discharge flow rate and the discharge concentrations for parameters in the permit application or in DMRs, which are entered into the spread sheet to establish site-specific discharge conditions. Other data such as low flow yield, reach dimensions and partial mix factors may also be entered to further characterize the conditions of the discharge and receiving water. Discharge concentrations for the parameters are chosen to represent the "worst case" quality of the discharge (i.e., maximum reported discharge concentrations). The spread sheet then evaluates each parameter by computing a Waste Load Allocation for each applicable criterion, determining a recommended maximum WQBEL and comparing that recommended WQBEL with the input discharge concentration to determine which is more stringent. Based on this evaluation, the Toxics Management Spread sheet recommends average monthly and maximum daily WQBELs.

Reasonable Potential Analysis and WQBEL Development for Outfall 001

Discharges from Outfall 001 are evaluated based on concentrations reported on the application, on DMRs and supplemental sampling conducted by EPA; data from those sources are entered into the Toxics Management Spread Sheet. The maximum reported value of the parameters from the application form or from previous DMRs is used as the input concentration in the Toxics Management Spread Sheet. All toxic pollutants whose maximum concentrations, as reported in the permit application or on DMRs, are greater than the most stringent applicable water quality criterion are considered to be pollutants of concern. [This includes pollutants reported as "Not Detectable" or as "<MDL" where the method detection limit for the analytical method used by the applicant is greater than the most stringent water quality criterion]. The Toxics Management Spread Sheet is run with the discharge and receiving stream characteristics shown in Table 4. For IW discharges, the design flow used in modeling is the average flow during production or operation taken from the permit application. Pollutants for which water quality standards have not been promulgated (e.g., TSS, oil and grease) are excluded from the analysis. All the parameters are evaluated using the model to determine the water quality-based effluent limits applicable to the discharge and the receiving stream. The spreadsheet then compares the reported discharge concentrations to the calculated water quality-based effluent limitations to determine if a reasonable potential exists to exceed the calculated WQBELs. Effluent limitations are established in the draft permit where a pollutant's maximum reported discharge concentration equals or exceeds 50% of the WQBEL. For non-conservative pollutants, monitoring requirements are established where the maximum reported concentration is between 25% - 50% of the WQBEL. For conservative pollutants, monitoring requirements are established where the maximum reported concentration is between 10% - 50% of the WQBEL. The information described above including the maximum reported discharge concentrations, the most stringent water quality criteria, the pollutant-of-concern (reasonable potential) determinations, the calculated WQBELs, and the WQBEL/monitoring recommendations are displayed in the Toxics Management Spread Sheet in Attachment F of this Fact Sheet.

According to the final recommended aquatic life criteria for selected PFAS, the most stringent water quality criteria for PFOA and PFOS are 100.0 µg/L and 0.25 µg/L, respectively. These values were entered into the Toxics Management Spreadsheet as the reference value and compared to the concentrations reported in the EPA's site inspection report. Based on this analysis, no Water Quality-Based Effluent Limits (WQBELs) were recommended for PFOA and PFOS at Outfall 001.

The Toxics Management Spread Sheet did not recommend any WQBELs for Outfall 001.

Table 4: TMS Inputs for Outfall 001

Parameter	Value
River Mile Index	974.71
Discharge Flow (MGD)	0.394
Basin/Stream Characteristics	
Parameter	**Value**
Area in Square Miles	19,400
Q_{7-10} (cfs)	2,365
Low-flow yield (cfs/mi^2)	0.121
Elevation (ft)	710
Slope	0.0008

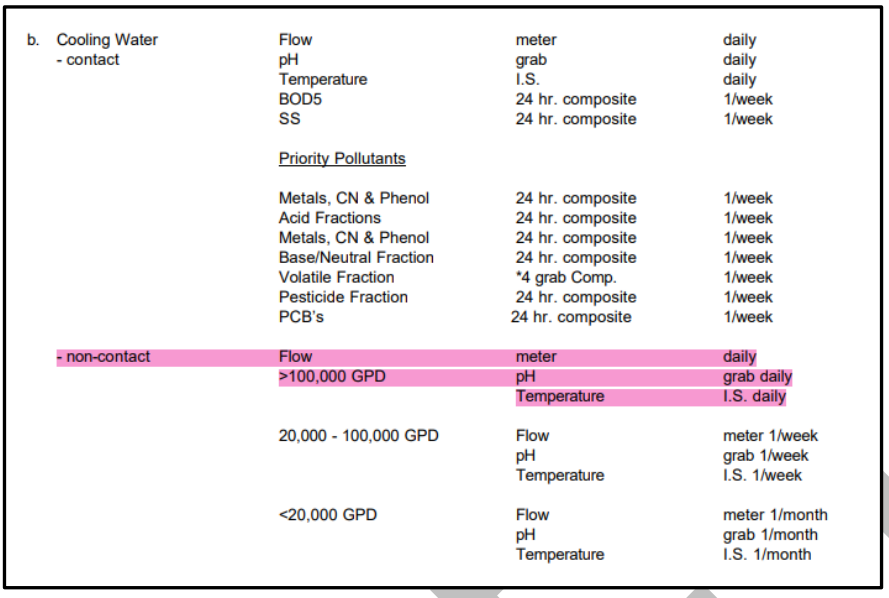
Anti-Backsliding

Previous limits can be used pursuant to EPA's anti-backsliding regulation, 40 CFR 122.44(l) and are displayed below in Table 5. These limitations are currently imposed on Outfall 001. Monitoring for Total Dissolved Solids and its major constituents (sulfate, chloride and bromide); Aluminum, Dissolved Iron and Manganese were previously imposed based on the following reasons:

- TDS and its major constituents including sulfate, chloride, and bromide have emerged as pollutants of concern in several major watersheds in the Commonwealth. The conservative nature of these solids allows them to accumulate in surface waters and they may remain a concern even if the immediate downstream public water supply is not directly impacted. Bromide has been linked to formation of disinfection byproducts at increased levels in public water systems.

- Calgon uses groundwater as the source of NCCW. Groundwater may contain aluminum, iron, and manganese naturally as minerals from sediment and/or rocks. Therefore, monitoring of aluminum, iron, and manganese was also applied at Outfall 001. The previous permit was intended to include an effluent limitation of 7 mg/L IMAX for Dissolved Iron, in accordance with §95.2(4), however, due to a typographical error, this limitation was not imposed.

- The flow monitoring requirement and pH and temperature limits were established during previous technical reviews, consistent with Chapter 6, Table 6-4 of the Pennsylvania permit writer's guidance, "Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits".



b.	Cooling Water	Flow	meter	daily
	- contact	pH	grab	daily
		Temperature	I.S.	daily
		BOD5	24 hr. composite	1/week
		SS	24 hr. composite	1/week
		Priority Pollutants		
		Metals, CN & Phenol	24 hr. composite	1/week
		Acid Fractions	24 hr. composite	1/week
		Metals, CN & Phenol	24 hr. composite	1/week
		Base/Neutral Fraction	24 hr. composite	1/week
		Volatile Fraction	*4 grab Comp.	1/week
		Pesticide Fraction	24 hr. composite	1/week
		PCB's	24 hr. composite	1/week
	- non-contact	Flow	meter	daily
		>100,000 GPD	pH	grab daily
			Temperature	I.S. daily
		20,000 - 100,000 GPD	Flow	meter 1/week
			pH	grab 1/week
			Temperature	I.S. 1/week
		<20,000 GPD	Flow	meter 1/month
			pH	grab 1/month
			Temperature	I.S. 1/month

Table 5: Current Limitations at Outfall 001

Parameter	Minimum	Average Monthly	Daily Maximum	Instantaneous Maximum	Sample Frequency	Sample Type
Flow (MGD)	-	Report	Report	-	Continuous	Metered
pH (S.U.)	6.0	-	-	9.0	1/day	Grab
Temperature (°F)	-	Report	-	110[a]	1/day	I-S
Total Dissolved Solids (mg/L)	-	Report	Report	-	1/week	24-Hr Composite
Chloride (mg/L)	-	Report	Report	-	1/week	24-Hr Composite
Bromide (mg/L)	-	Report	Report	-	1/week	24-Hr Composite
Sulfate (mg/L)	-	Report	Report	-	1/week	24-Hr Composite
Dissolved Iron (mg/L)	-	-	Report	-	1/month	24-Hr Composite
Total Aluminum (mg/L)	-	-	Report	-	1/month	24-Hr Composite
Total Manganese (mg/L)	-	-	Report	-	1/month	24-Hr Composite

[a]*The temperature is associated with the maximum design flow 0.394 MGD. The temperature must be kept at or below 110°F at all times.*

Proposed Effluent Limitations for Outfall 001

The proposed effluent limitations and monitoring requirements for Outfall 001 are shown below in Table 6. The limits are the most stringent values from the above limitation analysis.

A special condition in Part C of the NPDES permit will require quarterly monitoring for each of the 40 PFAS parameters detectable using EPA method 1633.

An effluent limitation for Dissolved Iron of 7mg/L IMAX was intended to be imposed in the previous permit, however, there was a typographical error and it was never imposed. Note that the Dissolved Iron value was incorrectly labeled as IMAX in the previous Fact Sheet when it should have been labeled as Daily Maximum. Following revisions to 25 Pa. Code §95.2(4) and to reflect existing permitting practices an effluent limitation for Dissolved Iron of 7 mg/L daily maximum will be established.

The Department has conducted a review of the permit requirements and discharge flow rates for Outfall 001. Based on this review, it has been determined that the daily monitoring frequency for pH and temperature remains applicable and consistent with the guidelines specified in Table 6-4. Additionally, pH and temperature are fundamental water quality parameters that serve as valuable early indicators of potential water quality issues. Therefore, the monitoring frequency for those parameters will remain in effect.

Table 6: Proposed Effluent Limitation at Outfall 001

Parameter	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Sample Frequency	Sample Type
Flow (MGD)	-	Report	Report	-	Continuous	Metered
pH (S.U.)	6.0	-	-	9.0	1/day	Grab
Temperature (°F)	-	Report	-	110[a]	1/day	I-S
Total Dissolved Solids (mg/L)	-	Report	Report	-	1/week	24-Hr Composite
Chloride (mg/L)	-	Report	Report	-	1/week	24-Hr Composite
Bromide (mg/L)	-	Report	Report	-	1/week	24-Hr Composite
Sulfate (mg/L)	-	Report	Report	-	1/week	24-Hr Composite
Dissolved Iron (mg/L)	-	-	7.0	-	1/month	24-Hr Composite
Total Iron	-	-	Report		1/month	24-Hr Composite
Total Aluminum (mg/L)	-	-	Report	-	1/month	24-Hr Composite
Total Manganese (mg/L)	-	-	Report	-	1/month	24-Hr Composite
Oil and Grease (mg/L)	-	-	Report	-	1/month	Grab
PFOA (ng/L)	-	-	Report	-	1/quarter	Grab
PFOS (ng/L)	-	-	Report	-	1/quarter	Grab
HFPO-DA (ng/L)	-	-	Report	-	1/quarter	Grab
PFBS (ng/L)	-	-	Report	-	1/quarter	Grab

[a]*The temperature is associated with the maximum design flow 0.394 MGD. The temperature must be kept at or below 110°F at all times.*

Development of Effluent Limitations

IMP No.	101	**Design Flow (MGD)**	0.0 (varied)
Latitude	40º 29' 31.59"	**Longitude**	-80º 04' 43.27"

Wastewater Description: Stormwater

Technology-Based Effluent limitations:

IMP 101 will be subject to PAG-03 General Stormwater Permit conditions as a minimum requirement because the facility discharges stormwater associated with industrial activity. Based on the site's SIC code, the corresponding appendix that would apply to the facility is Appendix F of the PAG-03. The proposed monitoring requirements are shown in Table 7 below. The benchmark values listed below are not effluent limitations, and exceedances do not constitute permit violations. However, if the permittee's sampling demonstrates exceedances of benchmark values for two consecutive monitoring periods, the permittee shall submit a Corrective Action Plan. This requirement will be included in Part C of the permit.

Table 7: PAG-03 Appendix (F) Monitoring Requirements

Parameters	Monitoring Requirements		Benchmark Values
	Minimum Measurement Frequency	Sample Type	
Total Nitrogen (mg/L)	1 / 6 Months	Calculation	XXX
Total Phosphorus (mg/L)	1 / 6 Months	Grab	XXX
pH (S.U))	1 / 6 Months	Grab	9.0
Chemical Oxygen Demand (COD) (mg/L)	1 / 6 Months	Grab	120
Total Suspended Solids (TSS) (mg/L)	1 / 6 Months	Grab	100
Nitrate + Nitrite-Nitrogen (mg/L)	1 / 6 Months	Grab	3.0
Total Lead (mg/L)	1 / 6 Months	Grab	XXX
Total Zinc (mg/L)	1 / 6 Months	Grab	XXX
Total Iron (mg/L)	1 / 6 Months	Grab	XXX
Total Aluminum (mg/L)	1 / 6 Months	Grab	XXX

Water Quality-Based Effluent limitations:

Water quality analyses are typically performed under low-flow (Q7-10) conditions. Stormwater discharges occur at variable rates and frequencies but not however during Q7-10 conditions. Since the discharges from IMP 101 are composed of stormwater, a formal water quality analysis cannot be accurately conducted. Accordingly, water quality-based effluent limitations based on water quality analyses are not proposed.

Mercury

Generally, WQBELs are not calculated for stormwater due to the above-mentioned limitations on that analysis. In light of EPA's detection of mercury in one of its stormwater samples however, the Department is inclined to ensure the pollutant is properly evaluated for regulation. Since the discharge is to the Ohio River, ORSANCO's water quality criterion for Mercury of 0.012 µg/L is applicable rather than the 25 Pa. Code Chapter 93 criterion of 0.05 ug/L.

The analytical results from EPA's inspection reported one detection of Mercury at IMP 101. The concentration reported was 0.099 µg/L. It should be noted that this result is less than the Department's Reporting Limit (0.2 µg/L) but greater than the Method Detection Limit (0.079 µg/L), and the concentration is an approximate value. However, EPA's analysis employed EPA Method SW-846 7470A (Mercury in Liquid Waste, Manual Cold-Vapor Technique), which is not listed as an approved test procedure for Mercury in 40 CFR Part 136. According to 40 CFR § 136.3(a), Table I.B, the approved methods for analyzing Mercury are shown in Figure 1 below.

Fig. 1 – EPA-Approved Analytical Methods for Mercury

Parameter	Methodology[58]	EPA[52]	Standard methods[64]	ASTM	USGS/AOAC/Other
35. Mercury—Total, mg/L	Cold vapor, Manual	245.1 Rev. 3.0 (1994)	3112 B-2020	D3223-17	977.22[3], I-3462-85.[2]
	Cold vapor, Automated	245.2 (Issued 1974).[1]			
	Cold vapor atomic fluorescence spectrometry (CVAFS)	245.7 Rev. 2.0 (2005)[17]			I-4464-01.[71]
	Purge and Trap CVAFS	1631E.[43]			

EPA's website titled Approved CWA Test Methods: Questions and Answers includes the following excerpt: (https://www.epa.gov/cwa-methods/approved-cwa-test-methods-questions-and-answers)

May I use EPA Office of Resource Conservation and Recovery's "SW-846" methods?

> *"Generally, no, for wastewater measurements. The permittee is required to use approved CWA methods for compliance purposes. SW-846 methods (solid waste methods) are not necessarily developed for the same monitoring purposes or matrices for which CWA methods are developed. However, your permitting authority may allow use of SW-846 or other methods for analyzing sewage sludge (biosolids)".*

The Department's application instructions also state that "analytical methods promulgated in 40 CFR Part 136 must be used where applicable." In addition, the Department's NPDES permit application instructions state that an automatic 24-hour composite sample must be taken for each permit renewal sampling event. EPA's IMP 101 Mercury sample was collected as a grab sample instead of a composite sample, which does not comply with the Department's application requirements, so the result should not be used as the sole basis for determining whether an effluent limitation is appropriate.

Although the analytical method employed by EPA is not listed as an EPA-approved test procedure for Mercury in 40 CFR Part 136, it is essential to acknowledge that Mercury was still detected. While the detection cannot be ignored by the Department, EPA's results also cannot be used to develop effluent limitations because the unapproved method is not available for use by the permitted community. Under the Department's permitting procedures, the results do not trigger effluent limits but due to EPA's reported detection above the criterion, additional data is needed. Therefore, the Draft permit includes semiannual monitoring requirements for Mercury to achieve this objective.

Lastly, Calgon's selected analytical method for Total Mercury analysis must be capable of detecting concentrations at or below 0.012 µg/L, which represents the most stringent applicable water quality criterion for Mercury. EPA Method 1631 is an acceptable method for this analysis. A footnote will be included in Part A of the Draft permit requiring use of an analytical method capable of achieving the ORSANCO criterion.

Anti-Backsliding

Previous limits can be used pursuant to EPA's anti-backsliding regulation, 40 CFR 122.44(l) and are displayed below in Table 8. These limitations are currently imposed on IMP 101.

Table 8: Current Limitations at IMP 101

Parameter	Daily Maximum	Benchmark Values (mg/L)	Sample Frequency	Sample Type
Flow (MGD)	Report	-	1/6 months	Estimated
pH (S.U.)	Report	-	1/6 months	Grab
Chemical Oxygen Demand (mg/L)	Report	120	1/6 months	Grab
TSS (mg/L)	Report	100	1/6 months	Grab

Parameter	Daily Maximum	Benchmark Values (mg/L)	Sample Frequency	Sample Type
Nitrate + Nitrite-Nitrogen (mg/L)	Report	-	1/6 months	Grab
Total Phosphorus (mg/L)	Report	-	1/6 months	Grab
Total Lead (mg/L)	Report	-	1/6 months	Grab
Total Zinc (mg/L)	Report	-	1/6 months	Grab
Total Iron (mg/L)	Report	-	1/6 months	Grab
Total Aluminum (mg/L)	Report	-	1/6 months	Grab

Proposed Final Effluent Limitations – IMP 101

The proposed effluent monitoring requirements for IMP 101 are displayed in Table 9 below, they are the most stringent values from the above effluent limitation development. The flow monitoring requirement has been removed from the permit because flow monitoring on stormwater discharges is generally not practical. The Draft Permit requires submission of a Corrective Action Plan when there are two consecutive exceedances of the benchmark values, which are also included in the Part C condition. The benchmark values are displayed below in Table 9. These values are not effluent limitations, an exceedance of the benchmark value is not a violation. As described above, if there are two consecutive exceedances of the benchmark value, a Corrective Action Plan must be developed and submitted to evaluate site stormwater controls and BMPs. Benchmark monitoring is a feedback tool, along with routine inspections and visual assessments, for assessing the effectiveness of stormwater controls and BMPs. An exceedance of the benchmark provides permittees with an indication that the facility's controls may not be sufficiently controlling pollutants in stormwater.

Table 9: Proposed Effluent Monitoring Requirements at IMP 101

Parameter	Max Daily Concentration	Benchmark Values (mg/L)	Measurement Frequency	Sample Type
Flow (MGD)	Report	XXX	1/6 months	Estimated
Total Nitrogen (mg/L)	Report	XXX	1/6 Months	Calculation
Total Phosphorus (mg/L)	Report	XXX	1/6 Months	Grab
pH (S.U)	Report	9.0	1/6 Months	Grab
Chemical Oxygen Demand (COD) (mg/L)	Report	120	1/6 Months	Grab
Total Suspended Solids (TSS) (mg/L)	Report	100	1/6 Months	Grab
Nitrate + Nitrite-Nitrogen (mg/L)	Report	3.0	1/6 Months	Grab
Total Lead (mg/L)	Report	XXX	1/6 Months	Grab
Total Zinc (mg/L)	Report	XXX	1/6 Months	Grab
Total Iron (mg/L)	Report	XXX	1/6 Months	Grab
Total Aluminum (mg/L)	Report	XXX	1/6 Months	Grab
Mercury (mg/L)	Report	XXX	1/6 Months	Grab

Development of Effluent Limitations

Outfall No.	002 (IMP 102)	**Design Flow (MGD)**	0.250
Latitude	40º 29' 30.26"	**Longitude**	-80º 04' 43.46"
Wastewater Description:	Non-contact cooling water, steam condensate, and stormwater		

Technology-Based Effluent Limitations (TBELs)

Regulatory Effluent Standards and Monitoring Requirements

Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1).

Temperature limits will be imposed per the Department's "*Implementation Guidance for Temperature Criteria*." As a policy, DEP normally imposes a maximum temperature limit of 110°F on discharges that contain residual heat. The limit is intended as a safety measure to protect sampling personnel or anyone who may come into contact with the heated discharge where it enters the receiving water.

Pennsylvania regulations at 25 Pa. Code § 92a.48(b) require the imposition of technology-based TRC limits for facilities that use chlorination and that are not already subject to TRC limits based on applicable federal ELGs or a facility-specific BPJ evaluation. Calgon does not use chlorine in any form in the facility. Total residual chlorine levels were detected in the effluent at 0.02 mg/L. This level is far below the Department's regulatory standard of 0.5 mg/L which would apply to discharges into the Ohio River. Therefore, effluent limitations/monitoring of TRC and/or free chlorine will not be required.

Effluent standards for pH are also imposed on industrial wastes by 25 Pa. Code § 95.2(1) as indicated in Table 10.

Table 10: Regulatory Effluent Standards and Monitoring Requirements for Outfall 002

Parameter	Monthly Average	Daily Maximum	IMAX	Units
Flow	Monitor and Report		XXX	MGD
Temperature	XXX	XXX	110	°F
pH	Not less than 6.0 nor greater than 9.0			S.U.

Per- and Polyfluoroalkyl Substances (PFAS)

The sample collected during the site inspection was tested for 34 out of the 40 PFAS compounds specified in Method 1633, and the results indicated the presence of 13 PFAS compounds at Outfall 002. Based on the latest Department's procedures and consistent with the EPA memorandum, monitoring requirements for each of the 40 PFAS parameters that can be analyzed and reported under EPA method 1633 will be imposed at Outfall 002 under Part C of the NPDES permit.

Oil and Grease

In accordance with Section I.C.2 of DEP's "Standard Operating Procedure (SOP) for the Clean Water Program – Establishing Effluent Limitations for Individual Industrial Permits" [SOP No. BCW-PMT-032] and under the authority of 25 Pa. Code § 95.2(2)(ii), DEP has determined that if the maximum concentration of Oil and Grease in the discharge is 4 mg/L or greater, a monitoring requirement should be established. The concentration reported in the application for Oil and Grease at Outfall 002 is 6.8 mg/L, therefore, monthly reporting of Oil and Grease will be required.

Water Quality-Based Effluent Limitations

Total Maximum Daily Load TMDL

The receiving section of the Ohio River has a TMDL for PCB and Chlordane due to a fish advisory since 1979. Calgon will not discharge PCB and Chlordane to the section of concern of the Ohio River, and therefore, the TMDLs will not be applied to Calgon's stormwater discharge. Part C18 condition will be added to the permit that states, "There shall be no discharge of polychlorinated biphenyl (PCB) compounds such as those commonly used for transformer fluid at any time".

In 1988, all chlordane uses, except its use for fire ant control in power transformers, were voluntarily canceled in the United States. Chlordane still can be legally manufactured in the US, but it can only be sold to or used by foreign countries. Although chlordane can be used to control fire ants in the US, no products are currently registered for this use. Therefore, no special Part C condition for Chlordane is needed.

Toxics Management Spread Sheet

Reasonable Potential Analysis and WQBEL Development for Outfall 002

Discharges from Outfall 002 are evaluated based on concentrations reported on the application, on DMRs and supplemental sampling conducted by EPA; data from those sources are entered into the Toxics Management Spread Sheet. The maximum reported discharge concentrations, the most stringent water quality criteria, the pollutant-of-concern (reasonable potential) determinations, the calculated WQBELs, and the WQBEL/monitoring recommendations are displayed in the Toxics Management Spread Sheet in Attachment G of this Fact Sheet. The Toxics Management Spread Sheet did not recommend any WQBELs for Outfall 002.

According to the final recommended aquatic life criteria for selected PFAS, the most stringent water quality criteria for PFOA and PFOS are 100.0 µg/L and 0.25 µg/L, respectively. These values were entered into the Toxics Management Spreadsheet as reference values and compared to the concentrations reported in the EPA's site inspection report. Based on this analysis, no Water Quality-Based Effluent Limits (WQBELs) were recommended at this time for PFOA and PFOS at Outfall 002.

Table 11: TMS Inputs for Outfall 002

Parameter	**Value**
River Mile Index	974.72
Discharge Flow (MGD)	0.250
Basin/Stream Characteristics	
Parameter	**Value**
Area in Square Miles	19,400
Q_{7-10} (cfs)	2,365
Low-flow yield (cfs/mi^2)	0.121
Elevation (ft)	710
Slope	0.0005

Anti-Backsliding

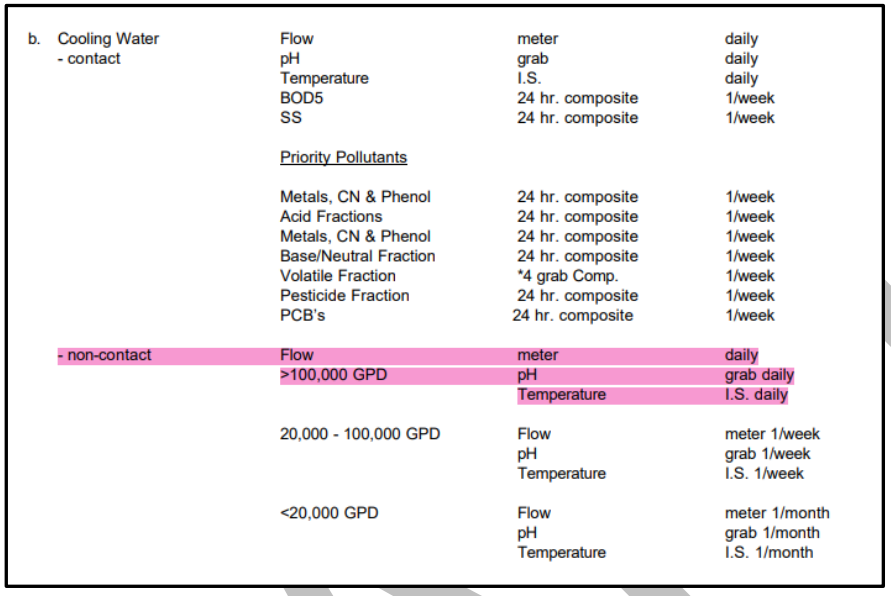
Previous limits can be used pursuant to EPA's anti-backsliding regulation, 40 CFR 122.44(l) and are displayed below in Table 12. These limitations are currently imposed on Outfall 002. Monitoring for Total Dissolved Solids and its major constitutes (sulfate, chloride and bromide); Aluminum, Dissolved Iron and Manganese were previously imposed based on the following reasons:

- TDS and its major constituents including sulfate, chloride, and bromide have emerged as pollutants of concern in several major watersheds in the Commonwealth. The conservative nature of these solids allows them to accumulate in surface waters and they may remain a concern even if the immediate downstream public water supply is not directly impacted. Bromide has been linked to formation of disinfection byproducts at increased levels in public water systems.

- Calgon uses groundwater as the source of NCCW. Groundwater may contain aluminum, iron, and manganese naturally as minerals from sediment and/or rocks. Therefore, monitoring of aluminum, iron, and manganese will also

be applied at Outfall 002.The previous permit was intended to include an effluent limitation of 7 mg/L IMAX for Dissolved Iron, in accordance with §95.2(4), However, due to a typographical error, this limitation was not imposed

- The flow monitoring requirement and pH and temperature limits were established during previous technical reviews, consistent with Chapter 6, Table 6-4 of the Pennsylvania permit writer's guidance, "*Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits*".



b. Cooling Water - contact	Flow	meter	daily
	pH	grab	daily
	Temperature	I.S.	daily
	BOD5	24 hr. composite	1/week
	SS	24 hr. composite	1/week
	Priority Pollutants		
	Metals, CN & Phenol	24 hr. composite	1/week
	Acid Fractions	24 hr. composite	1/week
	Metals, CN & Phenol	24 hr. composite	1/week
	Base/Neutral Fraction	24 hr. composite	1/week
	Volatile Fraction	*4 grab Comp.	1/week
	Pesticide Fraction	24 hr. composite	1/week
	PCB's	24 hr. composite	1/week
- non-contact	Flow	meter	daily
	>100,000 GPD	pH	grab daily
		Temperature	I.S. daily
	20,000 - 100,000 GPD	Flow	meter 1/week
		pH	grab 1/week
		Temperature	I.S. 1/week
	<20,000 GPD	Flow	meter 1/month
		pH	grab 1/month
		Temperature	I.S. 1/month

Table 12. Current Limitations at Outfall 002

Parameter	Minimum	Average Monthly	Daily Maximum	Instantaneous Maximum	Sample Frequency	Sample Type
Flow (MGD)	-	Report	Report	-	Continuous	Metered
pH (S.U.)	6.0	-	-	9.0	1/day	Grab
Temperature (°F)	-	Report	-	110[a]	1/day	I-S
Total Dissolved Solids (mg/L)	-	Report	Report	-	1/week	24-Hr Composite
Chloride (mg/L)	-	Report	Report	-	1/week	24-Hr Composite
Bromide (mg/L)	-	Report	Report	-	1/week	24-Hr Composite
Sulfate (mg/L)	-	Report	Report	-	1/week	24-Hr Composite
Dissolved Iron (mg/L)	-	-	Report	-	1/month	24-Hr Composite
Total Aluminum (mg/L)	-	-	Report	-	1/month	24-Hr Composite
Total Manganese (mg/L)	-	-	Report	-	1/month	24-Hr Composite

[a]*The temperature is associated with the maximum design flow 0.250 MGD. The temperature must be kept at or below 110°F at all time.*

Proposed Effluent Limitations for Outfall 002

The proposed effluent limitations and monitoring requirements for Outfall 002 are shown below in Table 13. The limits are the most stringent values from the above limitation analysis.

A special condition in Part C of the NPDES permit will require quarterly monitoring for each of the 40 PFAS parameters detectable using EPA method 1633.

An effluent limitation for Dissolved Iron of 7mg/L IMAX was intended to be imposed in the previous permit, however, there was a typographical error and it was never imposed. Note that the Dissolved Iron value was incorrectly labeled as IMAX in the previous Fact Sheet when it should have been labeled as Daily Maximum. Following revisions to 25 Pa. Code §95.2(4) and to reflect existing permitting practices an effluent limitation n for Dissolved Iron of 7 mg/L daily maximum will be established.

The Department has conducted a review of the permit requirements and discharge flow rates for Outfall 002. Based on this review, it has been determined that the daily monitoring frequency for pH and temperature remains applicable and consistent with the guidelines specified in Table 6-4. Additionally, pH and temperature are fundamental water quality parameters that serve as valuable early indicators of potential water quality issues. Therefore, the monitoring frequency for those parameters will remain in effect.

Table 13: Proposed Effluent Limitation at Outfall 002

Parameter	Instant. Minimum	Average Monthly	Daily Maximum	Instantaneous Maximum	Sample Frequency	Sample Type
Flow (MGD)	-	Report	Report	-	Continuous	Metered
pH (S.U.)	6.0	-	-	9.0	1/day	Grab
Temperature (°F)	-	Report	-	110[a]	1/day	I-S
Total Dissolved Solids (mg/L)	-	Report	Report	-	1/week	24-Hr Composite
Oil and Grease (mg/L)	-	-	Report	-	1/month	Grab
Chloride (mg/L)	-	Report	Report	-	1/week	24-Hr Composite
Bromide (mg/L)	-	Report	Report	-	1/week	24-Hr Composite
Sulfate (mg/L)	-	Report	Report	-	1/week	24-Hr Composite
Dissolved Iron (mg/L)	-	-	7.0	-	1/month	24-Hr Composite
Total Iron (mg/L)	-	-	Report	-	1/month	24-Hr Composite
Total Aluminum (mg/L)	-	-	Report	-	1/month	24-Hr Composite
Total Manganese (mg/L)	-	-	Report	-	1/month	24-Hr Composite
PFOA (ng/L)	-	-	Report	-	1/quarter	Grab
PFOS (ng/L)	-	-	Report	-	1/quarter	Grab
HFPO-DA (ng/L)	-	-	Report	-	1/quarter	Grab

Parameter	Instant. Minimum	Average Monthly	Daily Maximum	Instantaneous Maximum	Sample Frequency	Sample Type
PFBS (ng/L)	-	-	Report	-	1/quarter	Grab

[a]The temperature is associated with the maximum design flow 0.250 MGD. The temperature must be kept at or below 110°F at all times.

Development of Effluent Limitations

IMP No.	102	**Design Flow (MGD)**	0.0 (varied)
Latitude	40º 29' 30.7"	**Longitude**	-80º 04' 41.59"

Wastewater Description: Stormwater associated with industrial activity

Technology-Based Effluent limitations:

IMP 102 will be subject to PAG-03 General Stormwater Permit conditions as a minimum requirement because it discharges stormwater associated with industrial activity. Based on the site's SIC code, the corresponding appendix that would apply to the facility is Appendix F of the PAG-03. The proposed monitoring requirements are shown in Table 14 below. The benchmark values list below are not effluent limitation, and exceedances so not constitutes permit violations. However, if the permittee's sampling demonstrates exceedances of benchmark values for two consecutive monitoring periods, the permit shall submit a corrective action plan. This requirement will be included in Part C of the permit.

Table 14: PAG-03 Appendix (F) Monitoring Requirements

Parameters	Monitoring Requirements		Benchmark Values
	Minimum Measurement Frequency	Sample Type	
Total Nitrogen (mg/L)	1 / 6 Months	Calculation	XXX
Total Phosphorus (mg/L)	1 / 6 Months	Grab	XXX
pH (S.U))	1 / 6 Months	Grab	9.0
Chemical Oxygen Demand (COD) (mg/L)	1 / 6 Months	Grab	120
Total Suspended Solids (TSS) (mg/L)	1 / 6 Months	Grab	100
Nitrate + Nitrite-Nitrogen (mg/L)	1 / 6 Months	Grab	3.0
Total Lead (mg/L)	1 / 6 Months	Grab	XXX
Total Zinc (mg/L)	1 / 6 Months	Grab	XXX
Total Iron (mg/L)	1 / 6 Months	Grab	XXX
Total Aluminum (mg/L)	1 / 6 Months	Grab	XXX

Water Quality-Based Effluent limitations:

Water quality analyses are typically performed under low-flow (Q7-10) conditions. Stormwater discharges occur at variable rates and frequencies but not however during Q7-10 conditions. Since the discharges from Outfalls 102 are composed of stormwater, a formal water quality analysis cannot be accurately conducted. Accordingly, water quality-based effluent limitations based on water quality analyses are not proposed.

Mercury

Generally, WQBELs are not calculated for stormwater due to the above-mentioned limitations on that analysis. In light of EPA's detection of mercury in one of its stormwater samples however, the Department is inclined to ensure the pollutant is properly evaluated for regulation. Since the discharge is to the Ohio River, ORSANCO's water quality criterion for Mercury of 0.012 µg/L is applicable rather than the 25 Pa. Code Chapter 93 criterion of 0.05 ug/L.

The analytical results from the EPA's inspection, reported one detection of Mercury at IMP 102. The concentration reported was 0.09 µg/L. It should be noted that this result is less than the Department's Reporting Limit (0.2 µg/L) but greater than the Method Detection Limit (0.079 µg/L), and the concentration is an approximate value. However, EPA's analysis employed EPA Method SW-846 7470A (Mercury in Liquid Waste, Manual Cold-Vapor Technique), which is not listed as an approved test procedure for Mercury in 40 CFR Part 136. According to 40 CFR § 136.3(a), Table I.B, the approved methods for analyzing Mercury are shown in Figure 1 below.

Fig. 1 – EPA-Approved Analytical Methods for Mercury

Parameter	Methodology[58]	EPA[52]	Standard methods[84]	ASTM	USGS/AOAC/Other
35. Mercury–Total, mg/L	Cold vapor, Manual	245.1 Rev. 3.0 (1994)	3112 B-2020	D3223-17	977.22[3], I-3462-85.[2]
	Cold vapor, Automated	245.2 (Issued 1974).[1]			
	Cold vapor atomic fluorescence spectrometry (CVAFS)	245.7 Rev. 2.0 (2005)[17]			I-4464-01.[71]
	Purge and Trap CVAFS	1631E.[43]			

EPA's website titled Approved CWA Test Methods: Questions and Answers includes the following excerpt: (https://www.epa.gov/cwa-methods/approved-cwa-test-methods-questions-and-answers)

May I use EPA Office of Resource Conservation and Recovery's "SW-846" methods?

> *"Generally, no, for wastewater measurements. The permittee is required to use approved CWA methods for compliance purposes. SW-846 methods (solid waste methods) are not necessarily developed for the same monitoring purposes or matrices for which CWA methods are developed. However, your permitting authority may allow use of SW-846 or other methods for analyzing sewage sludge (biosolids)".*

The Department's application instructions also state that "analytical methods promulgated in 40 CFR Part 136 must be used where applicable." In addition, the Department's NPDES permit application instructions state that an automatic 24-hour composite sample must be taken for each permit renewal sampling event. EPA's IMP 102 Mercury sample was collected as a grab sample instead of a composite sample, which does not comply with the Department's application requirements, so the result should not be used as the sole basis for determining whether an effluent limitation is appropriate.

Although the analytical method employed by EPA is not listed as an EPA-approved test procedure for Mercury in 40 CFR Part 136, it is essential to acknowledge that Mercury was still detected. While the detection cannot be ignored by the Department, EPA's results also cannot be used to develop effluent limitations because the unapproved method is not available for use by the permitted community. Under the Department's permitting procedures, the results do not trigger effluent limits but due to EPA's reported detection above the criterion, additional data is needed. Therefore, the Draft permit includes semiannual monitoring requirements for Mercury to achieve this objective.

Lastly, Calgon's selected analytical method for Total Mercury analysis must be capable of detecting concentrations at or below 0.012 µg/L, which represents the most stringent applicable water quality criterion for Mercury. EPA Method 1631 is an acceptable method for this analysis. A footnote will be included in Part A of the Draft permit requiring use of an analytical method capable of achieving the ORSANCO criterion.

Anti-Backsliding

Previous limits can be used pursuant to EPA's anti-backsliding regulation, 40 CFR 122.44(l) and are displayed below in Table 15. These limitations are currently imposed on IMP 102.

Table 15: Current Limitations at IMP 102

Parameter	Daily Maximum	Benchmark Values (mg/L)	Sample Frequency	Sample Type
Flow (MGD)	Report	-	1/6 months	Estimated
pH (S.U.)	Report	-	1/6 months	Grab
Chemical Oxygen Demand (mg/L)	Report	120	1/6 months	Grab
TSS (mg/L)	Report	100	1/6 months	Grab

Parameter	Daily Maximum	Benchmark Values (mg/L)	Sample Frequency	Sample Type
Nitrate + Nitrite-Nitrogen (mg/L)	Report	-	1/6 months	Grab
Total Phosphorus (mg/L)	Report	-	1/6 months	Grab
Total Lead (mg/L)	Report	-	1/6 months	Grab
Total Zinc (mg/L)	Report	-	1/6 months	Grab
Total Iron (mg/L)	Report	-	1/6 months	Grab
Total Aluminum (mg/L)	Report	-	1/6 months	Grab

Proposed Final Effluent Limitations

The proposed effluent monitoring requirements for IMP 102 are displayed in Table 16 below, they are the most stringent values from the above effluent limitation development. The flow monitoring requirement has been removed from the permit because flow monitoring on stormwater discharges is generally not practical. The Draft Permit requires a Corrective Action Plan when there are two consecutive exceedances of the benchmark values, which are also included in the Part C condition. The benchmark values are displayed below in Table 16. These values are not effluent limitations, an exceedance of the benchmark value is not a violation. As described above, if there are two consecutive exceedances of the benchmark value, a Corrective Action Plan must be conducted to evaluate site stormwater controls and BMPs. Benchmark monitoring is a feedback tool, along with routine inspections and visual assessments, for assessing the effectiveness of stormwater controls and BMPs. An exceedance of the benchmark provides permittees with an indication that the facility's controls may not be sufficiently controlling pollutants in stormwater.

Table 16: Proposed Effluent Monitoring Requirements at IMP 102

Parameter	Max Daily Concentration	Benchmark Values (mg/L)	Measurement Frequency	Sample Type
Flow (MGD)	Report	XXX	1/6 months	Estimated
Total Nitrogen (mg/L)	Report	XXX	1/6 Months	Calculation
Total Phosphorus (mg/L)	Report	XXX	1/6 Months	Grab
pH (S.U)	Report	9.0	1/6 Months	Grab
Chemical Oxygen Demand (COD) (mg/L)	Report	120	1/6 Months	Grab
Total Suspended Solids (TSS) (mg/L)	Report	100	1/6 Months	Grab
Nitrate + Nitrite-Nitrogen (mg/L)	Report	3.0	1/6 Months	Grab
Total Lead (mg/L)	Report	XXX	1/6 Months	Grab
Total Zinc (mg/L)	Report	XXX	1/6 Months	Grab
Total Iron (mg/L)	Report	XXX	1/6 Months	Grab
Total Aluminum (mg/L)	Report	XXX	1/6 Months	Grab
Mercury	Report	XXX	1/6 Months	Grab

Development of Effluent Limitations

Outfall No.	005 (IMP 105)	**Design Flow (MGD)**	0.031
Latitude	40º 29' 30.78"	**Longitude**	-80º 04' 44.01"

Wastewater Description: Steam condensate, reverse osmosis reject water and stormwater

Technology-Based Effluent Limitations (TBELs) – Outfall 005

Regulatory Effluent Standards and Monitoring Requirements

Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1).

Temperature limits will be imposed per the Department's "*Implementation Guidance for Temperature Criteria*." As a policy, DEP normally imposes a maximum temperature limit of 110°F on discharges that contain residual heat. The limit is intended as a safety measure to protect sampling personnel or anyone who may come into contact with the heated discharge where it enters the receiving water.

Pennsylvania regulations at 25 Pa. Code § 92a.48(b) require the imposition of technology-based TRC limits for facilities that use chlorination and that are not already subject to TRC limits based on applicable federal ELGs or a facility-specific BPJ evaluation. Calgon does not use chlorine in any form in the facility, however, the DMRs have reported concentrations that are detectable at 0.79 mg/L, therefore Calgon may be unknowingly using chlorine. Effluent limitations/monitoring of TRC will be required.

Effluent standards for pH are also imposed on industrial wastes by 25 Pa. Code § 95.2(1) as indicated in Table 17.

Table 17: Regulatory Effluent Standards and Monitoring Requirements for Outfall 005

Parameter	Monthly Average	Daily Maximum	IMAX	Units
Flow	Monitor and Report		XXX	MGD
Temperature	XXX	XXX	110	°F
Total Residual Chlorine (TRC)	0.5	XXX	1.6	mg/L
pH	Not less than 6.0 nor greater than 9.0			S.U.

Oil and Grease

In accordance with Section I.C.2 of DEP's "Standard Operating Procedure (SOP) for Clean Water Program – Establishing Effluent Limitations for Individual Industrial Permits" [SOP No. BCW-PMT-032] and under the authority of 25 Pa. Code § 95.2(2)(ii), DEP has determined that if the maximum concentration of Oil and Grease in the discharge is 8 mg/L or greater, an effluent limitation should be established for Oil and Grease of 15 mg/L as an average monthly limit and 30 mg/L as an IMAX limit. The concentration reported in the application for Oil and Grease at Outfall 001 is 8.4 mg/L, therefore, effluent limitations for Oil and Grease will be established.

Per- and Polyfluoroalkyl Substances (PFAS)

The sample collected during the site inspection was tested for 34 out of the 40 PFAS compounds specified in Method 1633, and the result indicated the presence of 13 PFAS compounds at Outfall 005. Based on the latest Department's procedures and consistent with the EPA memorandum, monitoring requirements for each of the 40 PFAS parameters that can be analyzed and reported under EPA method 1633 will be imposed at Outfall 005.

Water Quality-Based Effluent Limitations – Outfall 005

Total Maximum Daily Load TMDL

The receiving section of the Ohio River has a TMDL for PCB and Chlordane due to a fish advisory since 1979. Calgon will not discharge PCB and Chlordane to the section of concern of the Ohio River, and therefore, the TMDLs will not be applied

to Calgon's stormwater discharge. Part C18 condition will be added to the permit that states, "There shall be no discharge of polychlorinated biphenyl (PCB) compounds such as those commonly used for transformer fluid at any time".

In 1988, all chlordane uses, except its use for fire ant control in power transformers, were voluntarily canceled in the United States. Chlordane still can be legally manufactured in the US, but it can only be sold to or used by foreign countries. Although chlordane can be used to control fire ants in the US, no products are currently registered for this use. Therefore, no special Part C condition for Chlordane is needed.

Toxics Management Spread Sheet

Reasonable Potential Analysis and WQBEL Development for Outfall 005

Discharges from Outfall 005 are evaluated based on concentrations reported on the application, on DMRs and supplemental sampling conducted by EPA; data from those sources are entered into the Toxics Management Spread Sheet. The Toxics Management Spread Sheet is run with the discharge and receiving stream characteristics shown in Table 18. The maximum reported discharge concentrations, the most stringent water quality criteria, the pollutant-of-concern (reasonable potential) determinations, the calculated WQBELs, and the WQBEL/monitoring recommendations are displayed in the Toxics Management Spread Sheet in Attachment H of this Fact Sheet.

Table 18: TMS Inputs for Outfall 005

Parameter	**Value**
River Mile Index	974.7
Discharge Flow (MGD)	0.031
Basin/Stream Characteristics	
Parameter	**Value**
Area in Square Miles	19,400
Q_{7-10} (cfs)	2,365
Low-flow yield (cfs/mi^2)	0.121
Elevation (ft)	710
Slope	0.0008

According to the final recommended aquatic life criteria for selected PFAS, the most stringent water quality criteria for PFOA and PFOS are 100.0 µg/L and 0.25 µg/L, respectively. These values were entered into the Toxics Management Spreadsheet as reference values and compared to the concentrations reported in the EPA's site inspection report. Based on this analysis, no Water Quality-Based Effluent Limits (WQBELs) are recommended at this time for PFOA and PFOS at Outfall 005.

Mercury

Since Outfall 005 discharges to the Ohio River, ORSANCO's water quality criterion for Mercury of 0.012 µg/L is applicable rather than the 25 Pa. Code Chapter 93 criterion of 0.05 ug/L.

The analytical results from the EPA's inspection, reported one detection of Mercury at Outfall 005. The concentration reported was 0.079 µg/L. It should be noted that this result is less than the Department's Reporting Limit (0.2 µg/L) but greater than the Method Detection Limit (0.079 µg/L), and the concentration is an approximate value. However, EPA's analysis employed EPA Method SW-846 7470A (Mercury in Liquid Waste, Manual Cold-Vapor Technique), which is not listed as an approved test procedure for Mercury in 40 CFR Part 136. According to 40 CFR § 136.3(a), Table I.B, the approved methods for analyzing Mercury are shown in Figure 1 below.

Fig. 1 – EPA-Approved Analytical Methods for Mercury

Parameter	Methodology[58]	EPA[52]	Standard methods[64]	ASTM	USGS/AOAC/Other
35. Mercury—Total, mg/L	Cold vapor, Manual	245.1 Rev. 3.0 (1994)	3112 B-2020	D3223-17	977.22[3], I-3462-85.[2]
	Cold vapor, Automated	245.2 (Issued 1974).[1]			
	Cold vapor atomic fluorescence spectrometry (CVAFS)	245.7 Rev. 2.0 (2005)[17]			I-4464-01.[71]
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EPA's website titled Approved CWA Test Methods: Questions and Answers includes the following excerpt: (https://www.epa.gov/cwa-methods/approved-cwa-test-methods-questions-and-answers)

May I use EPA Office of Resource Conservation and Recovery's "SW-846" methods?

> *"Generally, no, for wastewater measurements. The permittee is required to use approved CWA methods for compliance purposes. SW-846 methods (solid waste methods) are not necessarily developed for the same monitoring purposes or matrices for which CWA methods are developed. However, your permitting authority may allow use of SW-846 or other methods for analyzing sewage sludge (biosolids).*

The Department's application instructions also state that "analytical methods promulgated in 40 CFR Part 136 must be used where applicable." In addition, the Department's NPDES permit application instructions state that an automatic 24-hour composite sample must be taken for each permit renewal sampling event. EPA's IMP 102 Mercury sample was collected as a grab sample instead of a composite sample, which does not comply with the Department's application requirements, so the result should not be used as the sole basis for determining whether an effluent limitation is appropriate.

Although the analytical method employed by EPA is not listed as an EPA-approved test procedure for Mercury in 40 CFR Part 136, it is essential to acknowledge that Mercury was still detected. While the detection cannot be ignored by the Department, EPA's results also cannot be used to develop effluent limitations because the unapproved method is not available for use by the permitted community. Under the Department's permitting procedures, the results do not trigger effluent limits but due to EPA's reported detection above the criterion, additional data is needed. Therefore, the Draft permit includes semiannual monitoring requirements for Mercury to achieve this objective.

Lastly, Calgon's selected analytical method for Total Mercury analysis must be capable of detecting concentrations at or below 0.012 µg/L, which represents the most stringent applicable water quality criterion for Mercury. EPA Method 1631 is an acceptable method for this analysis. A footnote will be included in Part A of the Draft permit requiring use of an analytical method capable of achieving the ORSANCO criterion.

The Toxics Management Spread Sheet did not recommend any WQBELs for Outfall 005.

Total Residual Chlorine

To determine if WQBELs are required for discharges containing total residual chlorine (TRC), a discharge evaluation is performed using a DEP program called TRC_CALC created with Microsoft Excel for Windows. TRC_CALC calculates TRC Waste Load Allocations (WLAs) through the application of a mass balance model which considers TRC losses due to stream and discharge chlorine demands and first-order chlorine decay. Input values for the program include flow rates and chlorine demands for the receiving stream and the discharge, the number of samples taken per month, coefficients of TRC variability, partial mix factors, and an optional factor of safety. The mass balance model calculates WLAs for acute and chronic criteria that are then converted to long term averages using calculated multipliers. The multipliers are functions of the number of samples taken per month and the TRC variability coefficients (normally kept at default values unless site specific information is available). The most stringent limitation between the acute and chronic long-term averages is converted to an average monthly limit for comparison to the BAT average monthly limit of 0.5 mg/l from 25 Pa. Code § 92a.48(b)(2). The more stringent of these average monthly TRC limitations is imposed in the permit. The results of the modeling, included in Attachment I, indicate that no WQBELs are required for TRC.

Anti-Backsliding

Previous limits can be used pursuant to EPA's anti-backsliding regulation, 40 CFR 122.44(l) and are displayed below in Table 20. These limitations are currently imposed on Outfall 005. Monitoring for Total Dissolved Solids and its major constitutes (sulfate, chloride and bromide); Aluminum, Dissolved Iron and Manganese were previously imposed based on the following reasons:

- Per the monitoring initiative applied to DEP's NPDES program, where the concentration of TDS in the discharge exceeds 1,000 mg/L and the discharge flow exceeds 0.1 MGD, monitoring is required for TDS and its major constituents, i.e., sulfate, chloride, and bromide.

- Calgon discharges RO reject water without treatment through Outfall 005, therefore, the Safe Drinking Water Standards for Water Treatment Plants (WTPs) were imposed. A Daily Maximum effluent limitation for Total Residual Chlorine (TRC) of 0.5 mg/L daily maximum was incorrectly imposed. Based on the requirements for water treatment plant wastes, the effluent limitation for TRC should have been 1.0 mg/L. In accordance with CFR.44(l)(2)(i)(B)(2), this technical error was corrected and now a Daily Maximum effluent limitation for Total Residual Chlorine (TRC) of 1.0 mg/L daily maximum will be established.

Table 20: Current Limitations at Outfall 005

Parameter	Minimum	Average Monthly	Daily Maximum	Instantaneous Maximum	Sample Frequency	Sample Type
Flow (MGD)	-	Report	Report	-	Continuous	Metered
pH (S.U.)	6.0	-	-	9.0	1/day	Grab
Temperature (°F)	-	Report	-	110[a]	1/day	I-S
Total Dissolved Solids (mg/L)	-	Report	Report	-	1/week	24-Hr Composite
Chloride (mg/L)	-	Report	Report	-	1/week	24-Hr Composite
Bromide (mg/L)	-	Report	Report	-	1/week	24-Hr Composite
Sulfate (mg/L)	-	Report	Report	-	1/week	24-Hr Composite
Total Suspended Solids (mg/L)	-	30.0	60.0	-	1/week	24-Hr Composite
Total Iron (mg/L)	-	2.0	4.0	-	1/week	24-Hr Composite
Total Aluminum (mg/L)	-	4.0	8.0	-	1/week	24-Hr Composite
Total Manganese (mg/L)	-	1.0	2.0	-	1/week	24-Hr Composite
Total Residual Chlorine (mg/L)	-	0.5	0.5	-	1/week	Grab

[a]The temperature is associated with the maximum design flow 0.031 MGD. The temperature must be kept at or below 110°F at all time.

Proposed Effluent Limitations for Outfall 005

The proposed effluent limitations and monitoring requirements for Outfall 005 are shown below in Table 21. The limits are the most stringent values from the above limitation analysis.

A special condition in Part C of the NPDES permit will require quarterly monitoring for each of the 40 PFAS parameters detectable using EPA method 1633.

The analytical method for Total Mercury analysis must be capable of detecting concentrations at or below 0.012 µg/L, which represents the most stringent applicable water quality criterion for Mercury. EPA Method 1631 is an acceptable method for this analysis.

Table 21: Proposed Final Effluent Limitation at Outfall 005

Parameter	Instant. Minimum	Average Monthly	Daily Maximum	Instantaneous Maximum	Sample Frequency	Sample Type
Flow (MGD)	-	Report	Report	-	Continuous	Metered
pH (S.U.)	6.0	-	-	9.0	1/day	Grab
Temperature (°F)	-	Report	-	110[a]	1/day	I-S
Total Dissolved Solids (mg/L)	-	Report	Report	-	1/week	24-Hr Composite
Chloride (mg/L)	-	Report	Report	-	1/week	24-Hr Composite
Bromide (mg/L)	-	Report	Report	-	1/week	24-Hr Composite
Sulfate (mg/L)	-	Report	Report	-	1/week	24-Hr Composite
Total Suspended Solids (mg/L)	-	30.0	60.0	-	1/week	24-Hr Composite
Total Iron (mg/L)	-	2.0	4.0	-	1/week	24-Hr Composite
Total Aluminum (mg/L)	-	4.0	8.0	-	1/week	24-Hr Composite
Total Manganese (mg/L)	-	1.0	2.0	-	1/week	24-Hr Composite
Total Residual Chlorine (mg/L)	-	0.5	1.0	-	1/week	Grab
Total Mercury		-	Report	-	1/6 months	24-Hr Composite
Oil and Grease (mg/L)	-	15.0	-	30.0	1/week	Grab
PFOA (ng/L)	-	-	Report	-	1/Quarter	Grab
PFOS (ng/L)	-	-	Report	-	1/Quarter	Grab
HFPO-DA (ng/L)	-	-	Report	-	1/Quarter	Grab
PFBS (ng/L)	-	-	Report	-	1/Quarter	Grab

[a]*The temperature is associated with the maximum design flow 0.031 MGD. The temperature must be kept at or below 110°F at all times.*

Development of Effluent Limitations

IMP No.	105	**Design Flow (MGD)**	0.0 (varied)
Latitude	40º 29' 32.98"	**Longitude**	-80º 04' 42.19"
Wastewater Description:	Stormwater		

Technology-Based Effluent limitations:

IMP 105 will be subject to PAG-03 General Stormwater Permit conditions as a minimum requirement because it discharges stormwater associated with industrial activity. Based on the site's SIC code, the corresponding appendix that would apply to the facility is Appendix F of the PAG-03. The proposed monitoring requirements are shown in Table 23 below. The benchmark values listed below are not effluent limitations, and exceedances do not constitute permit violations. However, if the permittee's sampling demonstrates exceedances of benchmark values for two consecutive monitoring periods, the permittee shall submit a Corrective Action Pan. This requirement will be included in Part C of the permit.

Table 23: PAG-03 Appendix (F) Monitoring Requirements

Parameters	Monitoring Requirements		Benchmark Values
	Minimum Measurement Frequency	Sample Type	
Total Nitrogen (mg/L)	1 / 6 Months	Calculation	XXX
Total Phosphorus (mg/L)	1 / 6 Months	Grab	XXX
pH (S.U))	1 / 6 Months	Grab	9.0
Chemical Oxygen Demand (COD) (mg/L)	1 / 6 Months	Grab	120
Total Suspended Solids (TSS) (mg/L)	1 / 6 Months	Grab	100
Nitrate + Nitrite-Nitrogen (mg/L)	1 / 6 Months	Grab	3.0
Total Lead (mg/L)	1 / 6 Months	Grab	XXX
Total Zinc (mg/L)	1 / 6 Months	Grab	XXX
Total Iron (mg/L)	1 / 6 Months	Grab	XXX
Total Aluminum (mg/L)	1 / 6 Months	Grab	XXX

Water Quality-Based Effluent limitations:

Water quality analyses are typically performed under low-flow (Q7-10) conditions. Stormwater discharges occur at variable rates and frequencies but not however during Q7-10 conditions. Since the discharges from Outfalls 001 are composed of stormwater, a formal water quality analysis cannot be accurately conducted. Accordingly, water quality-based effluent limitations are not proposed.

Anti-Backsliding

Previous limits can be used pursuant to EPA's anti-backsliding regulation, 40 CFR 122.44(l) and are displayed below in Table 24. These limitations are currently imposed on IMP 105.

Table 24: Current Limitations at IMP 105

Parameter	Daily Maximum	Benchmark Value (mg/L)	Sample Frequency	Sample Type
Flow (MGD)	Report	-	1/6 months	Estimated
pH (S.U.)	Report	-	1/6 months	Grab
Chemical Oxygen Demand (mg/L)	Report	120	1/6 months	Grab
TSS (mg/L)	Report	100	1/6 months	Grab

Parameter	Daily Maximum	Benchmark Value (mg/L)	Sample Frequency	Sample Type
Nitrate + Nitrite-Nitrogen (mg/L)	Report	-	1/6 months	Grab
Total Phosphorus (mg/L)	Report	-	1/6 months	Grab
Total Lead (mg/L)	Report	-	1/6 months	Grab
Total Zinc (mg/L)	Report	-	1/6 months	Grab
Total Iron (mg/L)	Report	-	1/6 months	Grab
Total Aluminum (mg/L)	Report	-	1/6 months	Grab

Proposed Final Effluent Limitations

The proposed effluent monitoring requirements for IMP 105 are displayed in Table 25 below, they are the most stringent values from the above effluent limitation development. The flow monitoring requirement has been removed from the permit because flow monitoring on stormwater discharges is generally not practical. The Draft Permit requires a Corrective Action Plan when there are two consecutive exceedances of the benchmark values, which are also included in the Part C condition. The benchmark values are displayed below in Table 25. These values are not effluent limitations, an exceedance of the benchmark value is not a violation. As described above, if there are two consecutive exceedances of the benchmark value, a Corrective Action Plan must be conducted to evaluate site stormwater controls and BMPs. Benchmark monitoring is a feedback tool, along with routine inspections and visual assessments, for assessing the effectiveness of stormwater controls and BMPs. An exceedance of the benchmark provides permittees with an indication that the facility's controls may not be sufficiently controlling pollutants in stormwater.

Table 25: Proposed Effluent Monitoring Requirements at IMP 105

Parameter	Max Daily Concentration	Benchmark Values (mg/L)	Measurement Frequency	Sample Type
Flow (MGD)	Report	XXX	1/6 months	Estimated
Total Nitrogen (mg/L)	Report	XXX	1/6 Months	Calculation
Total Phosphorus (mg/L)	Report	XXX	1/6 Months	Grab
pH (S.U))	Report	9.0	1/6 Months	Grab
Chemical Oxygen Demand (COD) (mg/L)	Report	120	1/6 Months	Grab
Total Suspended Solids (TSS) (mg/L)	Report	100	1/6 Months	Grab
Nitrate + Nitrite-Nitrogen (mg/L)	Report	3.0	1/6 Months	Grab
Total Lead (mg/L)	Report	XXX	1/6 Months	Grab
Total Zinc (mg/L)	Report	XXX	1/6 Months	Grab
Total Iron (mg/L)	Report	XXX	1/6 Months	Grab
Total Aluminum (mg/L)	Report	XXX	1/6 Months	Grab

Development of Effluent Limitations

Outfall No.	006	**Design Flow (MGD)**	0.0 (varied)
Latitude	40º 29' 30.24"	**Longitude**	-80º 04' 38.16"
Wastewater Description:	Stormwater		

Outfall No.	007	**Design Flow (MGD)**	0.0 (varied)
Latitude	40º 29' 30.77"	**Longitude**	-80º 04' 32.08"
Wastewater Description:	Stormwater		

Outfall No.	008	**Design Flow (MGD)**	0.0 (varied)
Latitude	40º 29' 31.5"	**Longitude**	-80º 04' 44.5"
Wastewater Description:	Stormwater		

Outfall No.	009	**Design Flow (MGD)**	0.0 (varied)
Latitude	40º 29' 31.4"	**Longitude**	-80º 04' 43.3"
Wastewater Description:	Stormwater		

Technology-Based Effluent limitations:

Outfalls 006-009 will be subject to PAG-03 General Stormwater Permit conditions as a minimum requirement because they discharge stormwater associated with industrial activity. Based on the site's SIC code, the corresponding appendix that would apply to the facility is Appendix F of the PAG-03. The proposed monitoring requirements are shown in Table 26 below. The benchmark values listed below are not effluent limitations, and exceedances do not constitute permit violations. However, if the permittee's sampling demonstrates exceedances of benchmark values for two consecutive monitoring periods, the permittee shall submit a Corrective Action Plan. This requirement will be included in Part C of the permit.

Table 26: PAG-03 Appendix (F) Monitoring Requirements

Parameters	Monitoring Requirements		Benchmark Values
	Minimum Measurement Frequency	Sample Type	
Total Nitrogen (mg/L)	1 / 6 Months	Calculation	XXX
Total Phosphorus (mg/L)	1 / 6 Months	Grab	XXX
pH (S.U))	1 / 6 Months	Grab	9.0
Chemical Oxygen Demand (COD) (mg/L)	1 / 6 Months	Grab	120
Total Suspended Solids (TSS) (mg/L)	1 / 6 Months	Grab	100
Nitrate + Nitrite-Nitrogen (mg/L)	1 / 6 Months	Grab	3.0
Total Lead (mg/L)	1 / 6 Months	Grab	XXX
Total Zinc (mg/L)	1 / 6 Months	Grab	XXX
Total Iron (mg/L)	1 / 6 Months	Grab	XXX
Total Aluminum (mg/L)	1 / 6 Months	Grab	XXX

Per- and Polyfluoroalkyl Substances (PFAS)

The sample collected during the site inspection was tested for 34 out of the 40 PFAS compounds specified in Method 1633, and the result indicated the presence of 14 PFAS at Outfall 006 and 8 PFAS at Outfall 008.

Based on the latest Department's procedures and consistent with the EPA memorandum, monitoring requirements for each of the 40 PFAS parameters that can be analyzed and reported under EPA method 1633 will be imposed at Outfalls 006, 007, 008 and 009.

Water Quality-Based Effluent limitations:

Water quality analyses are typically performed under low-flow (Q7-10) conditions. Stormwater discharges occur at variable rates and frequencies but not however during Q7-10 conditions. Since the discharges from Outfalls 006 - 009 are composed entirely of stormwater, a formal water quality analysis cannot be accurately conducted. Accordingly, water quality-based effluent limitations are not proposed.

Anti-Backsliding

Previous limits can be used pursuant to EPA's anti-backsliding regulation, 40 CFR 122.44(l) and are displayed below in Table 27. These limitations are currently imposed on Outfalls 006 and 007.

Table 27: Current Limitations at Outfalls 006 and 007

Parameter	Daily Maximum	Benchmark Value (mg/L)	Sample Frequency	Sample Type
Flow (MGD)	Report	-	1/6 months	Estimated
pH (S.U.)	Report	-	1/6 months	Grab
Chemical Oxygen Demand (mg/L)	Report	120	1/6 months	Grab
TSS (mg/L)	Report	100	1/6 months	Grab
Nitrate + Nitrite-Nitrogen (mg/L)	Report	-	1/6 months	Grab
Total Phosphorus (mg/L)	Report	-	1/6 months	Grab
Total Lead (mg/L)	Report	-	1/6 months	Grab
Total Zinc (mg/L)	Report	-	1/6 months	Grab
Total Iron (mg/L)	Report	-	1/6 months	Grab
Total Aluminum (mg/L)	Report	-	1/6 months	Grab

Proposed Final Effluent Limitations

The proposed effluent monitoring requirements are outlined in table 28, which show the requirements for Outfalls 006-009. They are the most stringent values from the above effluent limitation development. The flow monitoring requirement has been removed from the permit because flow monitoring on stormwater discharges is generally not practical. The Draft Permit requires a Corrective Action Plan when there are two consecutive exceedances of the benchmark values, listed in Part C of the draft permit. The benchmark values are displayed below in Table 28. These values are not effluent limitations, an exceedance of the benchmark value is not a violation. As described above, if there are two consecutive exceedances of the benchmark value, a Corrective Action Plan must be developed and submitted to evaluate site's stormwater controls and BMPs. Benchmark monitoring is a feedback tool, along with routine inspections and visual assessments, for assessing the effectiveness of stormwater controls and BMPs. An exceedance of the benchmark provides permittees with an indication that the facility's controls may not be sufficiently controlling pollutants in stormwater.

A special condition in Part C of the NPDES permit will require quarterly monitoring for each of the 40 PFAS parameters detectable using EPA method 1633.

Table 28: Proposed Effluent Monitoring Requirements for Outfalls 006 - 009

Parameter	Max Daily Concentration	Benchmark Values (mg/L)	Measurement Frequency	Sample Type
Flow (MGD)	Report	XXX	1/6 months	Estimated
pH (S.U))	Report	9.0	1/6 Months	Grab
Chemical Oxygen Demand (COD) (mg/L)	Report	120	1/6 Months	Grab
Total Suspended Solids (TSS) (mg/L)	Report	100	1/6 Months	Grab
Nitrate + Nitrite-Nitrogen (mg/L)	Report	3.0	1/6 Months	Grab
Total Nitrogen (mg/L)	Report	XXX	1/6 Months	Calculation
Total Phosphorus (mg/L)	Report	XXX	1/6 Months	Grab
Total Aluminum (mg/L)	Report	XXX	1/6 Months	Grab
Total Iron (mg/L)	Report	XXX	1/6 Months	Grab
Total Lead (mg/L)	Report	XXX	1/6 Months	Grab
Total Zinc (mg/L)	Report	XXX	1/6 Months	Grab
PFOA (ng/L)	Report	XXX	1/quarter	Grab
PFOS (ng/L)	Report	XXX	1/quarter	Grab
PFBS (ng/L)	Report	XXX	1/quarter	Grab
HFPO-DA (ng/L)	Report	XXX	1/quarter	Grab

Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachments D, E, F)
☒	TRC Model Spreadsheet (see Attachment G)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
☐	Pennsylvania CSO Policy, 386-2000-002, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
☐	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 386-2000-020, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 386-2000-010, 3/1999.
☐	Design Stream Flows, 386-2000-003, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☐	SOP:
☐	Other:

Attachments

Attachment A: Operations compliance check summary report

Attachment B: Water Flow Diagram

Attachment C: EPA's Memorandum

Attachment D. Site Layout

Attachment E: StreamStats Report

Attachment F: Toxic Management Spreadsheet for Outfall 001

Attachment G: Toxic Management Spreadsheet for Outfall 002

Attachment H: Toxic Management Spreadsheet for Outfall 005

Attachment I: TRC Modeling Results for Outfall 005

ATTACHMENT A.
Operations Compliance Check Summary Report.

Operations Compliance Check Summary Report

Facility: Calgon Carbon
NPDES Permit No.: PA0091227
Compliance Review Period: 5/2019 – 5/2024
Inspection Summary:

INSP ID	INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC	INSPECTION COMMENT
3710119	02/07/2024	Compliance Evaluation	PA Dept of Environmental Protection	No Violations Noted	Follow up to verify corrections made after EPA inspections and discharge of outfall 005 to ALCOSAN. Outfall 005 was tied into ALCOSAN.
3710085	01/19/2024	Administrative/File Review	PA Dept of Environmental Protection	Violation(s) Noted	
3257138	09/28/2021	Administrative/File Review	PA Dept of Environmental Protection	Violation(s) Noted	
3147043	02/04/2021	Compliance Evaluation	PA Dept of Environmental Protection	Violation(s) Noted	Drafted CACP after the 2 NOV's for effluent violations.
3018845	04/10/2020	Administrative/File Review	PA Dept of Environmental Protection	Violation(s) Noted	Sent NOV. Need to conduct inspection.

Violation Summary:

VIOL ID	VIOLATION DATE	VIOLATION TYPE DESC	RESOLVED DATE	INSP ID	VIOLATION COMMENT
8175095	01/19/2024	NPDES - Violation of effluent limits in Part A of permit	02/07/2024	3710085	Facility discharges Outfall 005 to ALCOSAN.
931060	09/28/2021	NPDES - Violation of effluent limits in Part A of permit	09/28/2021	3257138	
907624	02/04/2021	NPDES - Violation of effluent limits in Part A of permit	02/12/2021	3147043	
882314	04/10/2020	NPDES - Violation of effluent limits in Part A of permit	04/15/2020	3018845	

Open Violations by Client ID:

No open violations for client ID 66264

Enforcement Summary:

ENF ID	ENF TYPE	ENF CREATION DATE	PENALTY AMOUNT	AMOUNT RECEIVED	ENF FINALSTATUS	ENF CLOSED DATE
425762	NOV	02/12/2024				
397521	CACP	09/28/2021	$25,000.00	$25,000.00	Comply/Closed	09/28/2021

DMR Violation Summary:

START	END	OUTFALL	PARAMETER	SAMPLE	PERMIT	UNITS	STATISTICAL BASE CODE

02/01/2024	02/29/2024	001	pH	5.92	6.0	S.U.	Daily Minimum
01/01/2024	01/31/2024	005	pH	9.28	9.0	S.U.	Instantaneous Maximum
11/01/2023	11/30/2023	005	pH	11.29	9.0	S.U.	Instantaneous Maximum
10/01/2023	10/31/2023	005	Manganese, Total	1.68	1.0	mg/L	Average Monthly
10/01/2023	10/31/2023	005	Manganese, Total	2.2	2.0	mg/L	Daily Maximum
09/01/2023	09/30/2023	005	Manganese, Total	1.21	1.0	mg/L	Average Monthly
08/01/2023	08/31/2023	005	Manganese, Total	1.213	1.0	mg/L	Average Monthly
07/01/2023	07/31/2023	005	Manganese, Total	2.26	1.0	mg/L	Average Monthly
07/01/2023	07/31/2023	005	Manganese, Total	3.3	2.0	mg/L	Daily Maximum
06/01/2023	06/30/2023	005	Manganese, Total	1.725	1.0	mg/L	Average Monthly
05/01/2023	05/31/2023	005	Manganese, Total	2.825	1.0	mg/L	Average Monthly
05/01/2023	05/31/2023	005	Manganese, Total	4.4	2.0	mg/L	Daily Maximum
03/01/2023	03/31/2023	005	Manganese, Total	3.65	1.0	mg/L	Average Monthly
03/01/2023	03/31/2023	005	Manganese, Total	4.4	2.0	mg/L	Daily Maximum
02/01/2023	02/28/2023	005	Manganese, Total	3.575	1.0	mg/L	Average Monthly
02/01/2023	02/28/2023	005	Manganese, Total	5.6	2.0	mg/L	Daily Maximum
01/01/2023	01/31/2023	005	Manganese, Total	5.525	1.0	mg/L	Average Monthly
01/01/2023	01/31/2023	005	Total Suspended Solids	30.75	30.0	mg/L	Average Monthly
01/01/2023	01/31/2023	005	Manganese, Total	12.0	2.0	mg/L	Daily Maximum
01/01/2023	01/31/2023	005	Total Residual Chlorine (TRC)	1.85	.5	mg/L	Daily Maximum
12/01/2022	12/31/2022	005	Manganese, Total	3.675	1.0	mg/L	Average Monthly
12/01/2022	12/31/2022	005	Total Suspended Solids	40.3	30.0	mg/L	Average Monthly
12/01/2022	12/31/2022	005	Manganese, Total	5.0	2.0	mg/L	Daily Maximum
12/01/2022	12/31/2022	005	Total Suspended Solids	68.0	60.0	mg/L	Daily Maximum
11/01/2022	11/30/2022	005	Iron, Total	2.24	2.0	mg/L	Average Monthly
11/01/2022	11/30/2022	005	Manganese, Total	5.24	1.0	mg/L	Average Monthly
11/01/2022	11/30/2022	005	Total Suspended Solids	120.36	30.0	mg/L	Average Monthly
11/01/2022	11/30/2022	005	Iron, Total	7.2	4.0	mg/L	Daily Maximum
11/01/2022	11/30/2022	005	Manganese, Total	12.00	2.0	mg/L	Daily Maximum

11/01/2022	11/30/2022	005	Total Suspended Solids	240.00	60.0	mg/L	Daily Maximum
05/01/2022	05/31/2022	005	Manganese, Total	2.975	1.0	mg/L	Average Monthly
05/01/2022	05/31/2022	005	Manganese, Total	4.1	2.0	mg/L	Daily Maximum
04/01/2022	04/30/2022	005	Manganese, Total	3.125	1.0	mg/L	Average Monthly
04/01/2022	04/30/2022	005	Manganese, Total	4.4	2.0	mg/L	Daily Maximum
03/01/2022	03/31/2022	005	Manganese, Total	2.66	1.0	mg/L	Average Monthly
03/01/2022	03/31/2022	005	Manganese, Total	3.3	2.0	mg/L	Daily Maximum
02/01/2022	02/28/2022	005	Manganese, Total	2.03	1.0	mg/L	Average Monthly
02/01/2022	02/28/2022	005	Manganese, Total	2.4	2.0	mg/L	Daily Maximum
02/01/2022	02/28/2022	005	Total Residual Chlorine (TRC)	0.79	.5	mg/L	Daily Maximum
01/01/2022	01/31/2022	005	Manganese, Total	2.3	1.0	mg/L	Average Monthly
01/01/2022	01/31/2022	005	Manganese, Total	3.8	2.0	mg/L	Daily Maximum
11/01/2021	11/30/2021	005	Temperature (deg F)	121.82	110	ºF	Instantaneous Maximum
06/01/2021	06/30/2021	005	Total Suspended Solids	70.00	60.0	mg/L	Daily Maximum
06/01/2021	06/30/2021	005	pH	9.72	9.0	S.U.	Instantaneous Maximum
05/01/2021	05/31/2021	005	Manganese, Total	2.39	1.0	mg/L	Average Monthly
05/01/2021	05/31/2021	005	Manganese, Total	5.40	2.0	mg/L	Daily Maximum
04/01/2021	04/30/2021	005	Manganese, Total	1.7	1.0	mg/L	Average Monthly
03/01/2021	03/31/2021	001	pH	5.9	6.0	S.U.	Daily Minimum
03/01/2021	03/31/2021	005	Manganese, Total	2.72	1.0	mg/L	Average Monthly
03/01/2021	03/31/2021	005	Manganese, Total	3.4	2.0	mg/L	Daily Maximum
02/01/2021	02/28/2021	005	Manganese, Total	2.3	1.0	mg/L	Average Monthly
02/01/2021	02/28/2021	005	Manganese, Total	3.1	2.0	mg/L	Daily Maximum
01/01/2021	01/31/2021	005	Manganese, Total	2.2	1.0	mg/L	Average Monthly
01/01/2021	01/31/2021	005	Manganese, Total	2.5	2.0	mg/L	Daily Maximum
12/01/2020	12/31/2020	005	Manganese, Total	2.06	1.0	mg/L	Average Monthly
12/01/2020	12/31/2020	005	Manganese, Total	2.2	2.0	mg/L	Daily Maximum
11/01/2020	11/30/2020	005	Manganese, Total	1.85	1.0	mg/L	Average Monthly
11/01/2020	11/30/2020	005	Manganese, Total	3.0	2.0	mg/L	Daily Maximum

10/01/2020	10/31/2020	005	Manganese, Total	1.41	1.0	mg/L	Average Monthly
09/01/2020	09/30/2020	005	pH	9.14	9.0	S.U.	Instantaneous Maximum
07/01/2020	07/31/2020	005	Manganese, Total	2.4	2.0	mg/L	Daily Maximum
06/01/2020	06/30/2020	005	Manganese, Total	1.575	1.0	mg/L	Average Monthly
06/01/2020	06/30/2020	005	Manganese, Total	2.1	2.0	mg/L	Daily Maximum
06/01/2020	06/30/2020	005	pH	9.42	9.0	S.U.	Instantaneous Maximum
05/01/2020	05/31/2020	005	Manganese, Total	2.65	1.0	mg/L	Average Monthly
05/01/2020	05/31/2020	005	Manganese, Total	2.8	2.0	mg/L	Daily Maximum
04/01/2020	04/30/2020	005	Manganese, Total	2.47	1.0	mg/L	Average Monthly
04/01/2020	04/30/2020	005	Manganese, Total	3.1	2.0	mg/L	Daily Maximum
03/01/2020	03/31/2020	005	Manganese, Total	3.24	1.0	mg/L	Average Monthly
03/01/2020	03/31/2020	005	Manganese, Total	4.3	2.0	mg/L	Daily Maximum
02/01/2020	02/29/2020	002	pH	3.99	6.0	S.U.	Daily Minimum
02/01/2020	02/29/2020	005	Manganese, Total	4.05	1.0	mg/L	Average Monthly
02/01/2020	02/29/2020	005	Manganese, Total	4.4	2.0	mg/L	Daily Maximum
02/01/2020	02/29/2020	005	pH	9.57	9.0	S.U.	Instantaneous Maximum
01/01/2020	01/31/2020	005	Manganese, Total	4.25	1.0	mg/L	Average Monthly
01/01/2020	01/31/2020	005	Manganese, Total	5.2	2.0	mg/L	Daily Maximum
12/01/2019	12/31/2019	005	Manganese, Total	2.875	1.0	mg/L	Average Monthly
12/01/2019	12/31/2019	005	Manganese, Total	4.1	2.0	mg/L	Daily Maximum
11/01/2019	11/30/2019	005	Manganese, Total	2.45	1.0	mg/L	Average Monthly
11/01/2019	11/30/2019	005	Manganese, Total	2.6	2.0	mg/L	Daily Maximum
10/01/2019	10/31/2019	005	Manganese, Total	1.2	1.0	mg/L	Average Monthly
10/01/2019	10/31/2019	005	Manganese, Total	3.1	2.0	mg/L	Daily Maximum
10/01/2019	10/31/2019	005	Total Suspended Solids	110.0	60.0	mg/L	Daily Maximum
09/01/2019	09/30/2019	005	Manganese, Total	2.4	1.0	mg/L	Average Monthly
09/01/2019	09/30/2019	005	Manganese, Total	3.1	2.0	mg/L	Daily Maximum
08/01/2019	08/31/2019	005	Manganese, Total	1.8	1.0	mg/L	Average Monthly
08/01/2019	08/31/2019	005	Manganese, Total	2.1	2.0	mg/L	Daily Maximum

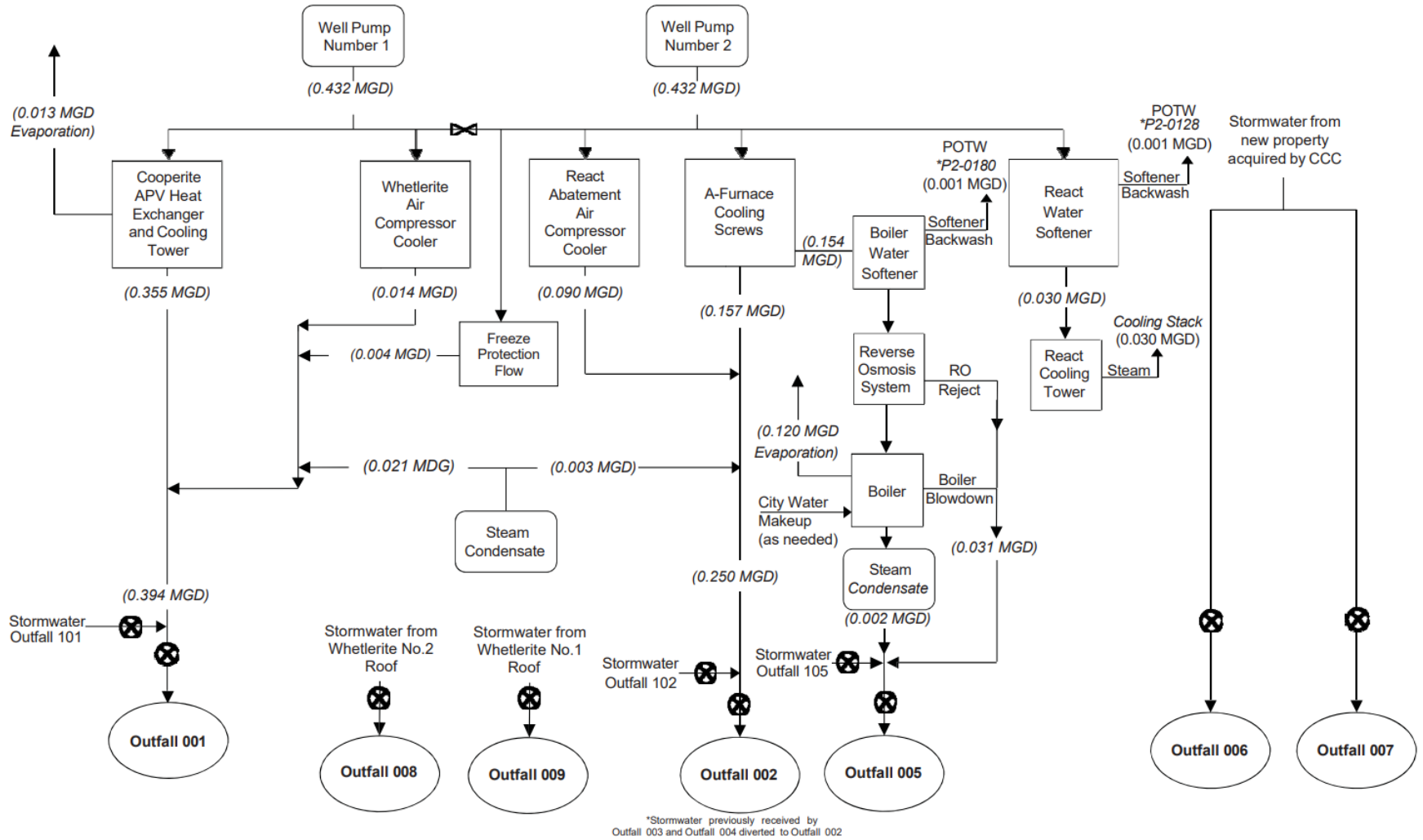
Compliance Status: As per WQS Bell, OF-005 discharges to ALCOSAN.
Completed by: John Murphy

Completed date: 5/9/2024

ATTACHMENT B.
Water Flow Diagram

CALGON CARBON CORPORATION - NEVILLE ISLAND FACILITY
NEVILLE ISLAND, PENNSYLVANIA

FIGURE 3. WATER FLOW DIAGRAM
NPDES PERMIT NO. PA0091227



NOTES: ⊗ = Sample Locations
Flow rate shown are maximum rates in MGD = million gallons per day
Steam condensate is present in outfalls 001, 002, 005, estimated flow distribution is shown Storm water/roof drain run-off is present in all outfalls (flow rates not included)

Flow Diagram Revision Date: March 27, 2024

ATTACHMENT C.
EPA's Memorandum

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF WATER

December 5, 2022

MEMORANDUM

SUBJECT: Addressing PFAS Discharges in NPDES Permits and Through the Pretreatment Program and Monitoring Programs

FROM: Radhika Fox
Assistant Administrator

TO: EPA Regional Water Division Directors, Regions 1-10

The National Pollutant Discharge Elimination System (NPDES) program is an important tool established by the Clean Water Act (CWA) to help address water pollution by regulating point sources that discharge pollutants to waters of the United States. Collectively, the U.S. Environmental Protection Agency (EPA) and states issue thousands of permits annually, establishing important monitoring and pollution reduction requirements for Publicly Owned Treatment Works (POTWs), industrial facilities, and stormwater discharges nationwide. The NPDES program interfaces with many pathways by which per-and polyfluoroalkyl substances (PFAS) travel and are released into the environment, and ultimately impact water quality and the health of people and ecosystems. Consistent with the Agency's commitments in the October 2021 *PFAS Strategic Roadmap: EPA's Commitments to Action 2021-2024 (PFAS Strategic Roadmap)*, EPA will work in cooperation with our state-authorized permitting authorities to leverage the NPDES program to restrict the discharge of PFAS at their sources. In addition to reducing PFAS discharges, this program will enable EPA and the states to obtain comprehensive information on the sources and quantities of PFAS discharges, which can be used to inform appropriate next steps to limit the discharges of PFAS.

This memorandum provides EPA's guidance to states and updates the April 28, 2022 guidance[1] to EPA Regions for addressing PFAS discharges when they are authorized to administer the NPDES permitting program and/or pretreatment program. These recommendations reflect the Agency's commitments in the PFAS Strategic Roadmap, which directs the Office of Water to leverage NPDES permits to reduce PFAS discharges to waterways "*at the source and obtain more comprehensive information through monitoring on the sources of PFAS and quantity of PFAS discharged by these sources.*" While the Office of Water works to revise Effluent Limitation Guidelines (ELGs) and develop water quality criteria to support technology-based and water quality-based effluent limits for PFAS in NPDES permits, this memorandum describes steps permit writers can implement under existing authorities to reduce the discharge of PFAS.

[1] Addressing PFAS Discharges in EPA-Issued NPDES Permits and Expectations Where EPA is the Pretreatment Control Authority, https://www.epa.gov/system/files/documents/2022-04/npdes_pfas-memo.pdf.

This memorandum also provides EPA's guidance for addressing sewage sludge PFAS contamination more rapidly than possible with monitoring based solely on NPDES permit renewals. States may choose to monitor the levels of PFAS in sewage sludge across POTWs and then consider mechanisms under pretreatment program authorities to prevent the introduction of PFAS to POTWs based on the monitoring results.

EPA recommends that the following array of NPDES and pretreatment provisions and monitoring programs be implemented by authorized states and POTWs, as appropriate, to the fullest extent available under state and local law. NPDES and pretreatment provisions may be included when issuing a permit or by modifying an existing permit pursuant to 40 CFR 122.62.

A. Recommendations for Applicable Industrial Direct Dischargers

1. **Applicability:** Industry categories known or suspected to discharge PFAS as identified on page 14 of the PFAS Strategic Roadmap include: organic chemicals, plastics & synthetic fibers (OCPSF); metal finishing; electroplating; electric and electronic components; landfills; pulp, paper & paperboard; leather tanning & finishing; plastics molding & forming; textile mills; paint formulating, and airports. This is not an exhaustive list and additional industries may also discharge PFAS. For example, Centralized Waste Treatment (CWT) facilities may receive wastes from the aforementioned industries and should be considered for monitoring. There may also be categories of dischargers that do not meet the applicability criteria of any existing ELG; for instance, remediation sites, chemical manufacturing not covered by OCPSF, and military bases.

   EPA notes that no permit may be issued to the owner or operator of a facility unless the owner or operator submits a complete permit application in accordance with applicable regulations, and applicants must provide any additional information that the permitting authority may reasonably require to assess the discharges of the facility (40 CFR 122.21(e), (g)(13)).[2] The applicant may be required to submit additional information under CWA Section 308 or under a similar provision of state law.

2. **Effluent-and wastewater residuals monitoring:** In the absence of a final 40 CFR Part 136 method, EPA recommends using CWA wastewater draft analytical method 1633 (*see* 40 CFR 122.21(e)(3)(ii) and 40 CFR 122.44(i)(1)(iv)(B)). EPA also recommends that monitoring include each of the 40 PFAS parameters detectable by draft method 1633 and be conducted at least quarterly to ensure that there are adequate data to assess the presence and concentration of PFAS in discharges. All PFAS monitoring data must be reported on Discharge Monitoring Reports (DMRs) (*see* 40 CFR 122.41(l)(4)(i)). The draft Adsorbable Organic Fluorine CWA wastewater method 1621 can be used in conjunction with draft method 1633, if appropriate. Certain industrial processes may generate PFAS-contaminated solid waste or air emissions not covered by NPDES permitting and permitting agencies should coordinate with appropriate state authorities on proper containment and disposal to avoid cross-media contamination. EPA's draft analytical method 1633 may be appropriate to assess the amount and types of PFAS for some of these wastestreams.[3]

[2] For more, see NPDES Permit Writer's Manual Section 4.5.1.
[3] See https://www.epa.gov/water-research/pfas-analytical-methods-development-and-sampling-research for a list of EPA-approved methods for other media.

3. **Best Management Practices (BMPs) for discharges of PFAS, including product substitution, reduction, or elimination of PFAS, as detected by draft method 1633:** Pursuant to 40 CFR 122.44(k)(4), EPA recommends that NPDES permits for facilities incorporate the following conditions when the practices are "reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA."[4]
   a. BMP conditions based on pollution prevention/source reduction opportunities, which may include:
      i. Product elimination or substitution when a reasonable alternative to using PFAS is available in the industrial process.
      ii. Accidental discharge minimization by optimizing operations and good housekeeping practices.
      iii. Equipment decontamination or replacement (such as in metal finishing facilities) where PFAS products have historically been used to prevent discharge of legacy PFAS following the implementation of product substitution.
   b. Example BMP permit special condition language:
      i. *PFAS pollution prevention/source reduction evaluation*: Within 6 months of the effective date of the permit, the facility shall provide an evaluation of whether the facility uses or has historically used any products containing PFAS, whether use of those products or legacy contamination reasonably can be reduced or eliminated, and a plan to implement those steps.
      ii. *Reduction or Elimination*: Within 12 months of the effective date of the permit, the facility shall implement the plan in accordance with the PFAS pollution prevention/source reduction evaluation.
      iii. *Annual Report*: An annual status report shall be developed which includes a list of potential PFAS sources, summary of actions taken to reduce or eliminate PFAS, any applicable source monitoring results, any applicable effluent results for the previous year, and any relevant adjustments to the plan, based on the findings.
      iv. *Reporting:* When EPA's electronic reporting tool for DMRs (called "NetDMR") allows for the permittee to submit the pollution prevention/source reduction evaluation and the annual report, the example permit language can read, "The pollution prevention/source reduction evaluation and annual report shall be submitted to EPA via EPA's electronic reporting tool for DMRs (called "NetDMR").

4. **BMPs to address PFAS-containing firefighting foams for stormwater permits:** Pursuant to 122.44(k)(2), where appropriate, EPA recommends that NPDES stormwater permits include BMPs to address Aqueous Film Forming Foam (AFFF) used for firefighting, such as the following:[5]
   a. Prohibiting the use of AFFFs other than for actual firefighting.
   b. Eliminating PFOS and PFOA -containing AFFFs.
   c. Requiring immediate clean-up in all situations where AFFFs have been used, including diversions and other measures that prevent discharges via storm sewer systems.

5. **Permit Limits:** As specified in 40 CFR 125.3, technology-based treatment requirements under CWA Section 301(b) represent the minimum level of control that must be imposed in NPDES permits. Site-specific technology-based effluent limits (TBELs) for PFAS discharges developed on a best professional judgment (BPJ) basis may be appropriate for facilities for which there are no applicable effluent guidelines (*see* 40 CFR 122.44(a), 125.3). Also, NPDES permits must include water quality-based effluent limits (WQBELs) as derived from state water quality standards, in

[4] For more on BMPs, see NPDES Permit Writer's Manual Section 9.1 and EPA Guidance Manual for Developing Best Management Practices.
[5] Naval Air Station Whidbey Island MS4 permit incorporates these provisions.

addition to TBELs developed on a BPJ basis, if necessary to achieve water quality standards, including state narrative criteria for water quality (CWA Section 301(b)(1)(C); 40 CFR 122.22(d)). If a state has established a numeric criterion or a numeric translation of an existing narrative water quality standard for PFAS parameters, the permit writer should apply that numeric criterion or narrative interpretation in permitting decisions, pursuant to 40 CFR 122.44(d)(1)(iii) and 122.44(d)(1)(vi)(A), respectively.

B. Recommendations for Publicly Owned Treatment Works

1. **Applicability:** All POTWs, including POTWs that do not receive industrial discharges, and industrial users (IUs) in the industrial categories above.

2. **Effluent, influent, and biosolids monitoring:** In the absence of a final 40 CFR Part 136 method, EPA recommends using CWA wastewater draft analytical method 1633 (*see* 40 CFR 122.21(e)(3)(ii) and 40 CFR 122.44(i)(1)(iv)(B)). EPA also recommends that monitoring include each of the 40 PFAS parameters detectable by draft method 1633 and be conducted at least quarterly to ensure that there are adequate data to assess the presence and concentration of PFAS in discharges. All PFAS monitoring data must be reported on DMRs (*see* 40 CFR 122.41(l)(4)(i)). The draft Adsorbable Organic Fluorine CWA wastewater method 1621 can be used in conjunction with draft method 1633, if appropriate.

3. **Pretreatment program activities:**
   a. Update IU Inventory: Permits to POTWs should contain requirements to identify and locate all possible IUs that might be subject to the pretreatment program and identify the character and volume of pollutants contributed to the POTW by the IUs (*see* 40 CFR 403.8(f)(2)). As EPA regulations require, this information shall be provided to the pretreatment control authority (*see* 40 CFR 122.44(j) and 40 CFR 403.8(f)(6)) within one year. The IU inventory should be revised, as necessary, to include all IUs in industry categories expected or suspected of PFAS discharges listed above (*see* 40 CFR 403.12(i)).[6]
   b. Utilize BMPs and pollution prevention to address PFAS discharges to POTWs. EPA recommends that POTWs:
      i. Update IU permits/control mechanisms to require quarterly monitoring. These IUs should be input into the Integrated Compliance Information System (ICIS) with appropriate linkage to their respective receiving POTWs. POTWs and states may also use their available authorities to conduct quarterly monitoring of the IUs (*see* 40 CFR 403.8(f)(2), 403.10(e) and (f)(2)).
      ii. Where authority exists, develop IU BMPs or local limits. 40 CFR 403.5(c)(4) authorizes POTWs to develop local limits in the form of BMPs. Such BMPs could be like those for industrial direct discharges described in A.3 above.
      iii. In the absence of local limits and POTW legal authority to issue IU control mechanisms, state pretreatment coordinators are encouraged to work with the POTWs to encourage pollution prevention, product substitution, and good housekeeping practices to make meaningful reductions in PFAS introduced to POTWs.

[6] ELG categories of **airport deicing, landfills, textile mills, and plastics molding and forming do not have categorical pretreatment standards**, and therefore small-volume indirect dischargers in those categories would not ordinarily be considered Significant Industrial Users (SIUs) and may not be captured on an existing IU inventory. IUs under the Paint Formulating category are only subject to Pretreatment Standards for New Sources (PSNS), and existing sources may need to be inventoried.

C. Recommended Biosolids Assessment

1. Where appropriate, states may work with their POTWs to reduce the amount of PFAS chemicals in biosolids, in addition to the NPDES recommendations in Section B above, following these general steps:[7]

a. EPA recommends using draft method 1633 to analyze biosolids at POTWs for the presence of 40 PFAS chemicals.[8]

b. Where monitoring and IU inventory per section B.2 and B.3.a above indicate the presence of PFAS in biosolids from industrial sources, EPA recommends actions in B.3.b to reduce PFAS discharges from IUs.

c. EPA recommends validating PFAS reductions with regular monitoring of biosolids. States may also use their available authorities to conduct quarterly monitoring of the POTWs (*see* 40 CFR 403.10(f)(2)).

D. Recommended Public Notice for Draft Permits with PFAS-Specific Conditions

1. In addition to the requirements for public notice described in 40 CFR 124.10, EPA recommends that NPDES permitting authorities provide notification to potentially affected downstream public water systems (PWS) of draft permits with PFAS-specific monitoring, BMPs, or other conditions:

a. Public notice of the draft permit would be provided to potentially affected PWS with intakes located downstream of the NPDES discharge.

b. NPDES permit writers are encouraged to collaborate with their drinking water program counterparts to determine on a site-specific basis which PWS to notify.

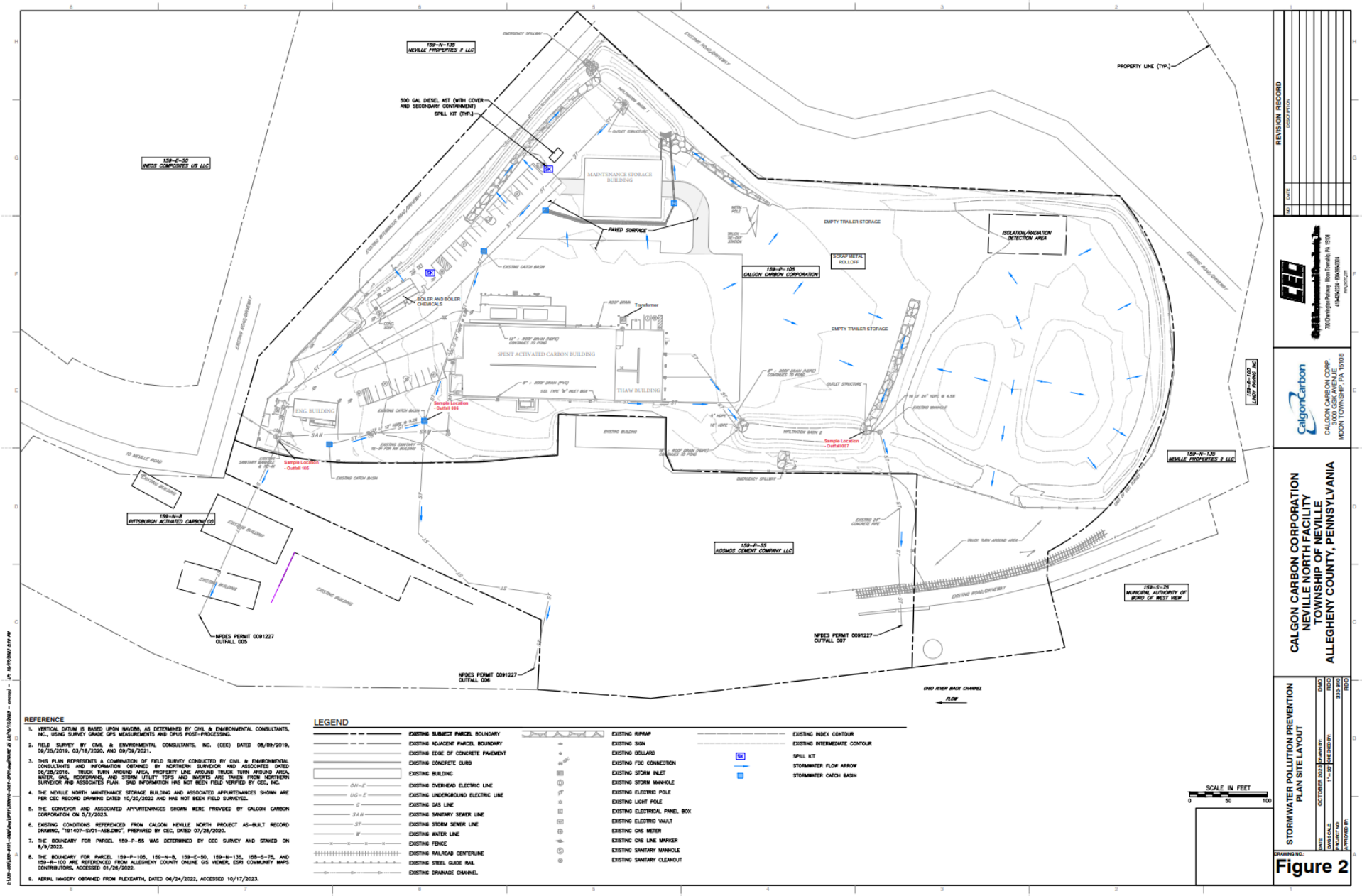
   i. EPA's Drinking Water Mapping Application to Protect Source Waters (DWMAPS) tool may be helpful as a screening tool to identify potentially affected PWS to notify.

c. EPA will provide instructions on how to search for facility-specific discharge monitoring data in EPA's publicly available search tools.

[7] EPA is currently evaluating the potential risk of PFOA and PFOS in biosolids and supporting studies and activities to evaluate the presence of PFOA and PFOS in biosolids. This recommendation is not meant to supersede the PFOA and PFOS risk assessment or supporting activities. The conclusions of the risk assessment and supporting studies may indicate that regulatory actions or more stringent requirements are necessary to protect human health and the environment.

[8] While water quality monitoring activities (including monitoring of PFAS associated with NPDES permit or pretreatment requirements) at POTWs are generally not eligible for Clean Water State Revolving Fund (CWSRF), monitoring for the specific purpose of project development (planning, design, and construction) is eligible. Monitoring in this capacity, and within a reasonable timeframe, can be integral to the identification of the best solutions (through an alternatives analysis) for addressing emerging contaminants and characterizing discharge and point of disposal (e.g., land application of biosolids). Though ideally the planning and monitoring for project development would result in a CWSRF-eligible capital project, in some instances, the planning could lead to outcomes other than capital projects to address the emerging contaminants.

Attachment D. Site Layout



REFERENCE

1. VERTICAL DATUM IS BASED UPON NAVD88, AS DETERMINED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC., USING SURVEY GRADE GPS MEASUREMENTS AND OPUS POST-PROCESSING.
2. FIELD SURVEY BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC. (CEC) DATED 08/09/2019, 09/25/2019, 03/18/2020, AND 09/09/2021.
3. THIS PLAN REPRESENTS A COMBINATION OF FIELD SURVEY CONDUCTED BY CIVIL & ENVIRONMENTAL CONSULTANTS AND INFORMATION OBTAINED BY NORTHERN SURVEYOR AND ASSOCIATES DATED 06/28/2016. TRUCK TURN AROUND AREA, PROPERTY LINE AROUND TRUCK TURN AROUND AREA, WATER, GAS, ROOFDRAINS, AND STORM UTILITY TOPS AND INVERTS ARE TAKEN FROM NORTHERN SURVEYOR AND ASSOCIATES PLAN. SAID INFORMATION HAS NOT BEEN FIELD VERIFIED BY CEC, INC.
4. THE NEVILLE NORTH MAINTENANCE STORAGE BUILDING AND ASSOCIATED APPURTENANCES SHOWN ARE PER CEC RECORD DRAWING DATED 10/20/2022 AND HAS NOT BEEN FIELD SURVEYED.
5. THE CONVEYOR AND ASSOCIATED APPURTENANCES SHOWN WERE PROVIDED BY CALGON CARBON CORPORATION ON 5/2/2023.
6. EXISTING CONDITIONS REFERENCED FROM CALGON NEVILLE NORTH PROJECT AS-BUILT RECORD DRAWING, "191407-SV01-ASBLDWG", PREPARED BY CEC, DATED 07/28/2020.
7. THE BOUNDARY FOR PARCEL 159-P-55 WAS DETERMINED BY CEC SURVEY AND STAKED ON 8/9/2022.
8. THE BOUNDARY FOR PARCEL 159-P-105, 159-N-8, 159-E-50, 159-N-135, 158-S-75, AND 159-R-100 ARE REFERENCED FROM ALLEGHENY COUNTY ONLINE GIS VIEWER, ESRI COMMUNITY MAPS CONTRIBUTORS, ACCESSED 01/26/2022.
9. AERIAL IMAGERY OBTAINED FROM PLEXEARTH, DATED 08/24/2022, ACCESSED 10/17/2023.

LEGEND

- EXISTING SUBJECT PARCEL BOUNDARY
- EXISTING ADJACENT PARCEL BOUNDARY
- EXISTING EDGE OF CONCRETE PAVEMENT
- EXISTING CONCRETE CURB
- EXISTING BUILDING
- EXISTING OVERHEAD ELECTRIC LINE
- EXISTING UNDERGROUND ELECTRIC LINE
- EXISTING GAS LINE
- EXISTING SANITARY SEWER LINE
- EXISTING STORM SEWER LINE
- EXISTING WATER LINE
- EXISTING FENCE
- EXISTING RAILROAD CENTERLINE
- EXISTING STEEL GUIDE RAIL
- EXISTING DRAINAGE CHANNEL
- EXISTING RIPRAP
- EXISTING SIGN
- EXISTING BOLLARD
- EXISTING FDC CONNECTION
- EXISTING STORM INLET
- EXISTING STORM MANHOLE
- EXISTING ELECTRIC POLE
- EXISTING LIGHT POLE
- EXISTING ELECTRICAL PANEL BOX
- EXISTING ELECTRIC VAULT
- EXISTING GAS METER
- EXISTING GAS LINE MARKER
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY CLEANOUT
- EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- SK SPILL KIT
- STORMWATER FLOW ARROW
- STORMWATER CATCH BASIN

REVISION RECORD

NO	DATE	DESCRIPTION

CEC
Civil & Environmental Consultants, Inc.
700 Cherrington Parkway Moon Township PA 15108
412.429.2324 800.365.2324
www.cecinc.com

CalgonCarbon
CALGON CARBON CORP.
3000 GSK DRIVE
MOON TOWNSHIP, PA 15108

CALGON CARBON CORPORATION
NEVILLE NORTH FACILITY
TOWNSHIP OF NEVILLE
ALLEGHENY COUNTY, PENNSYLVANIA

STORMWATER POLLUTION PREVENTION PLAN SITE LAYOUT

DATE:	OCTOBER 2023	DRAWN BY: DMO
DWG SCALE:	1" = 80'	CHECKED BY: RDO
PROJECT NO.		3385.910
APPROVED BY:		RDO

DRAWING NO.:
Figure 2

ATTACHMENT E
StreamStats Report

PA0091227 - Calgon Carbon Corporation - StreamStats Report

Region ID: PA
Workspace ID: PA20240220130302728000
Clicked Point (Latitude, Longitude): 40.49967, -80.07696
Time: 2024-02-20 08:03:37 -0500

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	0	percent
DRNAREA	Area that drains to a point on a stream	19400	square miles
ELEV	Mean Basin Elevation	1675	feet
FOREST	Percentage of area covered by forest	72.4836	percent
PRECIP	Mean Annual Precipitation	45	inches
URBAN	Percentage of basin with urban development	4.1478	percent

Base Flow Statistics

Base Flow Statistics Parameters [Statewide Mean and Base Flow]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	19400	square miles	2.26	1720
PRECIP	Mean Annual Precipitation	45	inches	33.1	50.4
CARBON	Percent Carbonate	0	percent	0	99
FOREST	Percent Forest	72.4836	percent	5.1	100
URBAN	Percent Urban	4.1478	percent	0	89

Base Flow Statistics Disclaimers [Statewide Mean and Base Flow]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Base Flow Statistics Flow Report [Statewide Mean and Base Flow]

Statistic	Value	Unit
Base Flow 10 Year Recurrence Interval	13500	ft^3/s
Base Flow 25 Year Recurrence Interval	12100	ft^3/s
Base Flow 50 Year Recurrence Interval	11300	ft^3/s

Base Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

Application Version: 4.19.4
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

ATTACHMENT F
Toxics Management Spreadsheet Results for Outfall 001

Discharge Information

Instructions | Discharge | Stream

Facility: **Neville Island Plant** NPDES Permit No.: **PA0091227** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **NCCW, cooling tower blowdown, steam co**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.394	230	8.69						

					0 if left blank		*0.5 if left blank*		*0 if left blank*			*1 if left blank*	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		1500									
	Chloride (PWS)	mg/L		3590									
	Bromide	mg/L		2.71									
	Sulfate (PWS)	mg/L		346									
	Fluoride (PWS)	mg/L		0.228									
Group 2	Total Aluminum	µg/L	<	300									
	Total Antimony	µg/L	<	0.52									
	Total Arsenic	µg/L	<	0.86									
	Total Barium	µg/L		78									
	Total Beryllium	µg/L	<	0.2									
	Total Boron	µg/L		76									
	Total Cadmium	µg/L		0.15									
	Total Chromium (III)	µg/L	<	0.33									
	Hexavalent Chromium	µg/L	<	6									
	Total Cobalt	µg/L		3.8									
	Total Copper	µg/L		7.8									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	8									
	Dissolved Iron	µg/L		310									
	Total Iron	µg/L	<	20									
	Total Lead	µg/L	<	0.34									
	Total Manganese	µg/L		310000									
	Total Mercury	µg/L	<	0.08									
	Total Nickel	µg/L		4.5									
	Total Phenols (Phenolics) (PWS)	µg/L		12									
	Total Selenium	µg/L	<	1.2									
	Total Silver	µg/L	<	0.39									
	Total Thallium	µg/L	<	0.26									
	Total Zinc	µg/L	<	10									
	Total Molybdenum	µg/L		6.1									
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										
	Carbon Tetrachloride	µg/L	<										
	Chlorobenzene	µg/L											

Group 3	Chlorodibromomethane	µg/L	<										
	Chloroethane	µg/L	<										
	2-Chloroethyl Vinyl Ether	µg/L	<										
	Chloroform	µg/L	<										
	Dichlorobromomethane	µg/L	<										
	1,1-Dichloroethane	µg/L	<										
	1,2-Dichloroethane	µg/L	<										
	1,1-Dichloroethylene	µg/L	<										
	1,2-Dichloropropane	µg/L	<										
	1,3-Dichloropropylene	µg/L	<										
	1,4-Dioxane	µg/L	<										
	Ethylbenzene	µg/L	<										
	Methyl Bromide	µg/L	<										
	Methyl Chloride	µg/L	<										
	Methylene Chloride	µg/L	<										
	1,1,2,2-Tetrachloroethane	µg/L	<										
	Tetrachloroethylene	µg/L	<										
	Toluene	µg/L	<										
	1,2-trans-Dichloroethylene	µg/L	<										
	1,1,1-Trichloroethane	µg/L	<										
	1,1,2-Trichloroethane	µg/L	<										
	Trichloroethylene	µg/L	<										
	Vinyl Chloride	µg/L	<										
Group 4	2-Chlorophenol	µg/L	<										
	2,4-Dichlorophenol	µg/L	<										
	2,4-Dimethylphenol	µg/L	<										
	4,6-Dinitro-o-Cresol	µg/L	<										
	2,4-Dinitrophenol	µg/L	<										
	2-Nitrophenol	µg/L	<										
	4-Nitrophenol	µg/L	<										
	p-Chloro-m-Cresol	µg/L	<										
	Pentachlorophenol	µg/L	<										
	Phenol	µg/L	<										
	2,4,6-Trichlorophenol	µg/L	<										
Group 5	Acenaphthene	µg/L	<										
	Acenaphthylene	µg/L	<										
	Anthracene	µg/L	<										
	Benzidine	µg/L	<										
	Benzo(a)Anthracene	µg/L	<										
	Benzo(a)Pyrene	µg/L	<										
	3,4-Benzofluoranthene	µg/L	<										
	Benzo(ghi)Perylene	µg/L	<										
	Benzo(k)Fluoranthene	µg/L	<										
	Bis(2-Chloroethoxy)Methane	µg/L	<										
	Bis(2-Chloroethyl)Ether	µg/L	<										
	Bis(2-Chloroisopropyl)Ether	µg/L	<										
	Bis(2-Ethylhexyl)Phthalate	µg/L	<										
	4-Bromophenyl Phenyl Ether	µg/L	<										
	Butyl Benzyl Phthalate	µg/L	<										
	2-Chloronaphthalene	µg/L	<										
	4-Chlorophenyl Phenyl Ether	µg/L	<										
	Chrysene	µg/L	<										
	Dibenzo(a,h)Anthrancene	µg/L	<										
	1,2-Dichlorobenzene	µg/L	<										
	1,3-Dichlorobenzene	µg/L	<										
	1,4-Dichlorobenzene	µg/L	<										
	3,3-Dichlorobenzidine	µg/L	<										
	Diethyl Phthalate	µg/L	<										
	Dimethyl Phthalate	µg/L	<										
	Di-n-Butyl Phthalate	µg/L	<										
	2,4-Dinitrotoluene	µg/L	<										
	2,6-Dinitrotoluene	µg/L	<										
	Di-n-Octyl Phthalate	µg/L	<										
	1,2-Diphenylhydrazine	µg/L	<										

	Fluoranthene	µg/L	<										
	Fluorene	µg/L	<										
	Hexachlorobenzene	µg/L	<										
	Hexachlorobutadiene	µg/L	<										
	Hexachlorocyclopentadiene	µg/L	<										
	Hexachloroethane	µg/L	<										
	Indeno(1,2,3-cd)Pyrene	µg/L	<										
	Isophorone	µg/L	<										
	Naphthalene	µg/L	<										
	Nitrobenzene	µg/L	<										
	n-Nitrosodimethylamine	µg/L	<										
	n-Nitrosodi-n-Propylamine	µg/L	<										
	n-Nitrosodiphenylamine	µg/L	<										
	Phenanthrene	µg/L	<										
	Pyrene	µg/L	<										
	1,2,4-Trichlorobenzene	µg/L	<										
Group 6	Aldrin	µg/L	<										
	alpha-BHC	µg/L	<										
	beta-BHC	µg/L	<										
	gamma-BHC	µg/L	<										
	delta BHC	µg/L	<										
	Chlordane	µg/L	<										
	4,4-DDT	µg/L	<										
	4,4-DDE	µg/L	<										
	4,4-DDD	µg/L	<										
	Dieldrin	µg/L	<										
	alpha-Endosulfan	µg/L	<										
	beta-Endosulfan	µg/L	<										
	Endosulfan Sulfate	µg/L	<										
	Endrin	µg/L	<										
	Endrin Aldehyde	µg/L	<										
	Heptachlor	µg/L	<										
	Heptachlor Epoxide	µg/L	<										
	PCB-1016	µg/L	<										
	PCB-1221	µg/L	<										
	PCB-1232	µg/L	<										
	PCB-1242	µg/L	<										
	PCB-1248	µg/L	<										
	PCB-1254	µg/L	<										
	PCB-1260	µg/L	<										
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<										
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											
	PFOA	µg/L		0.0053									
	PFOS	µg/L		0.0076									

Stream / Surface Water Information

Neville Island Plant, NPDES Permit No. PA0091227, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Ohio River**

No. Reaches to Model: **1**

- ○ Statewide Criteria
- ○ Great Lakes Criteria
- ◉ ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	032317	974.72	710	19400			Yes
End of Reach 1	032317	971.46	696	19500		7.2	Yes

Q_{7-10}

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	974.72	0.1	2,365			562.8	18					100	7		
End of Reach 1	971.46	0.1	4,730			1062.8	18								

Q_h

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	974.72														
End of Reach 1	971.46														

Model Results

Neville Island Plant, NPDES Permit No. PA0091227, Outfall 001

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | All | Inputs | Results | Limits

☑ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.274 Analysis Hardness (mg/l): 100.12 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	799,239	
Total Antimony	0	0		0	1,100	1,100	1,172,217	
Total Arsenic	0	0		0	340	340	362,322	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	22,378,697	
Total Boron	0	0		0	8,100	8,100	8,631,783	
Total Cadmium	0	0		0	2.016	2.14	2,276	Chem Translator of 0.944 applied
Total Chromium (III)	0	0		0	570.333	1,805	1,923,343	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	17,363	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	101,237	
Total Copper	0	0		0	13.455	14.0	14,935	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	64.667	81.8	87,140	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	1,755	Chem Translator of 0.85 applied
Total Nickel	0	0		0	468.719	470	500,492	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	3.224	3.79	4,041	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	69,267	
Total Zinc	0	0		0	117.302	120	127,815	Chem Translator of 0.978 applied
PFOA	0	0		0	3,100	3,100	3,303,522	
PFOS	0	0		0	71	71.0	75,661	

☑ ***CFC*** CCT (min): ###### PMF: 1 Analysis Hardness (mg/l): 100.03 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	853,845	
Total Arsenic	0	0		0	150	150	582,167	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	15,912,572	
Total Boron	0	0		0	1,600	1,600	6,209,784	
Total Cadmium	0	0		0	0.246	0.27	1,051	Chem Translator of 0.909 applied
Total Chromium (III)	0	0		0	74.135	86.2	334,565	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	40,344	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	73,741	
Total Copper	0	0		0	8.958	9.33	36,217	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	5,821,673	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.518	3.18	12,353	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	3,516	Chem Translator of 0.85 applied
Total Nickel	0	0		0	52.021	52.2	202,508	Chem Translator of 0.997 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	4.600	4.99	19,363	Chem Translator of 0.922 applied
Total Silver	0	0		0	N/A	N/A	N/A	Chem Translator of 1 applied
Total Thallium	0	0		0	13	13.0	50,454	
Total Zinc	0	0		0	118.173	120	465,153	Chem Translator of 0.986 applied
PFOA	0	0		0	100	100.0	388,112	
PFOS	0	0		0	0.25	0.25	970	

☑ ***THH*** CCT (min): ###### THH PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A PWS PMF: 1

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	#########	WQC applied at RMI 971.46 with a design stream flow of 4730 cfs
Chloride (PWS)	0	0		0	250,000	250,000	#########	WQC applied at RMI 971.46 with a design stream flow of 4730 cfs
Sulfate (PWS)	0	0		0	250,000	250,000	#########	WQC applied at RMI 971.46 with a design stream flow of 4730 cfs
Fluoride (PWS)	0	0		0	1,000	1,000	3,881,115	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	21,734	
Total Arsenic	0	0		0	10	10.0	38,811	
Total Barium	0	0		0	1,000	1,000	3,881,115	
Total Boron	0	0		0	3,100	3,100	12,031,457	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	1,300	1,300	5,045,450	
Dissolved Iron	0	0		0	300	300	1,164,335	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	3,881,115	
Total Mercury	0	0		0	0.012	0.012	46.6	
Total Nickel	0	0		0	610	610	2,367,480	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	38,806	WQC applied at RMI 971.46 with a design stream flow of 4730 cfs
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	0.24	0.24	931	
Total Zinc	0	0		0	7,400	7,400	28,720,252	
PFOA	0	0		0	N/A	N/A	N/A	
PFOS	0	0		0	N/A	N/A	N/A	

CRL CCT (min): ###### PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	50	50.0	541,677	
Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	
PFOA	0	0		0	N/A	N/A	N/A	
PFOS	0	0		0	N/A	N/A	N/A	

☑ ***Recommended WQBELs & Monitoring Requirements***

No. Samples/Month:

Pollutants	*Mass Limits*		*Concentration Limits*				Governing WQBEL	WQBEL Basis	Comments
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units			

☑ ***Other Pollutants without Limits or Monitoring***

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	3,880,615	mg/L	Discharge Conc ≤ 10% WQBEL
Chloride (PWS)	1,940,308	mg/L	Discharge Conc ≤ 10% WQBEL
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	1,940,308	mg/L	Discharge Conc ≤ 10% WQBEL
Fluoride (PWS)	3,881	mg/L	Discharge Conc ≤ 10% WQBEL
Total Aluminum	512,280	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	3,881,115	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	5,532,625	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	1,051	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	334,565	µg/L	Discharge Conc < TQL
Hexavalent Chromium	11,129	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	64,889	µg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	9,573	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	1,164,335	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	5,821,673	µg/L	Discharge Conc < TQL
Total Lead	12,353	µg/L	Discharge Conc < TQL
Total Manganese	3,881,115	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.012	µg/L	Discharge Conc < TQL
Total Nickel	202,508	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)	38,806	µg/L	Discharge Conc ≤ 10% WQBEL
Total Selenium	19,363	µg/L	Discharge Conc < TQL
Total Silver	2,590	µg/L	Discharge Conc < TQL
Total Thallium	931	µg/L	Discharge Conc < TQL
Total Zinc	81,924	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
PFOA	388,112	µg/L	Discharge Conc ≤ 25% WQBEL
PFOS	970	µg/L	Discharge Conc ≤ 25% WQBEL

ATTACHMENT G
Toxics Management Spreadsheet Results for Outfall 002

Discharge Information

Instructions | Discharge | Stream

Facility: **Neville Island Plant** NPDES Permit No.: **PA0091227** Outfall No.: **002**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **NCCW, steam condensate, stormwater**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.25	360	8.44						

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		17000									
	Chloride (PWS)	mg/L		2950									
	Bromide	mg/L		4.61									
	Sulfate (PWS)	mg/L		378									
	Fluoride (PWS)	mg/L		0.252									
Group 2	Total Aluminum	µg/L		140									
	Total Antimony	µg/L	<	0.52									
	Total Arsenic	µg/L	<	0.86									
	Total Barium	µg/L		140									
	Total Beryllium	µg/L	<	0.2									
	Total Boron	µg/L		110									
	Total Cadmium	µg/L		0.18									
	Total Chromium (III)	µg/L	<	2.6									
	Hexavalent Chromium	µg/L	<	6									
	Total Cobalt	µg/L		6.3									
	Total Copper	µg/L		7.5									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L		89									
	Dissolved Iron	µg/L		320									
	Total Iron	µg/L		69									
	Total Lead	µg/L		0.36									
	Total Manganese	µg/L		3700									
	Total Mercury	µg/L	<	0.08									
	Total Nickel	µg/L		7.7									
	Total Phenols (Phenolics) (PWS)	µg/L	<	9.3									
	Total Selenium	µg/L	<	1.2									
	Total Silver	µg/L	<	0.39									
	Total Thallium	µg/L	<	0.26									
	Total Zinc	µg/L		11									
	Total Molybdenum	µg/L		2									
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										
	Carbon Tetrachloride	µg/L	<										
	Chlorobenzene	µg/L											
	Chlorodibromomethane	µg/L	<										
	Chloroethane	µg/L	<										
	2-Chloroethyl Vinyl Ether	µg/L	<										

Group 3	Chloroform	µg/L	<										
	Dichlorobromomethane	µg/L	<										
	1,1-Dichloroethane	µg/L	<										
	1,2-Dichloroethane	µg/L	<										
	1,1-Dichloroethylene	µg/L	<										
	1,2-Dichloropropane	µg/L	<										
	1,3-Dichloropropylene	µg/L	<										
	1,4-Dioxane	µg/L	<										
	Ethylbenzene	µg/L	<										
	Methyl Bromide	µg/L	<										
	Methyl Chloride	µg/L	<										
	Methylene Chloride	µg/L	<										
	1,1,2,2-Tetrachloroethane	µg/L	<										
	Tetrachloroethylene	µg/L	<										
	Toluene	µg/L	<										
	1,2-trans-Dichloroethylene	µg/L	<										
	1,1,1-Trichloroethane	µg/L	<										
	1,1,2-Trichloroethane	µg/L	<										
	Trichloroethylene	µg/L	<										
	Vinyl Chloride	µg/L	<										
Group 4	2-Chlorophenol	µg/L	<										
	2,4-Dichlorophenol	µg/L	<										
	2,4-Dimethylphenol	µg/L	<										
	4,6-Dinitro-o-Cresol	µg/L	<										
	2,4-Dinitrophenol	µg/L	<										
	2-Nitrophenol	µg/L	<										
	4-Nitrophenol	µg/L	<										
	p-Chloro-m-Cresol	µg/L	<										
	Pentachlorophenol	µg/L	<										
	Phenol	µg/L	<										
	2,4,6-Trichlorophenol	µg/L	<										
Group 5	Acenaphthene	µg/L	<										
	Acenaphthylene	µg/L	<										
	Anthracene	µg/L	<										
	Benzidine	µg/L	<										
	Benzo(a)Anthracene	µg/L	<										
	Benzo(a)Pyrene	µg/L	<										
	3,4-Benzofluoranthene	µg/L	<										
	Benzo(ghi)Perylene	µg/L	<										
	Benzo(k)Fluoranthene	µg/L	<										
	Bis(2-Chloroethoxy)Methane	µg/L	<										
	Bis(2-Chloroethyl)Ether	µg/L	<										
	Bis(2-Chloroisopropyl)Ether	µg/L	<										
	Bis(2-Ethylhexyl)Phthalate	µg/L	<										
	4-Bromophenyl Phenyl Ether	µg/L	<										
	Butyl Benzyl Phthalate	µg/L	<										
	2-Chloronaphthalene	µg/L	<										
	4-Chlorophenyl Phenyl Ether	µg/L	<										
	Chrysene	µg/L	<										
	Dibenzo(a,h)Anthrancene	µg/L	<										
	1,2-Dichlorobenzene	µg/L	<										
	1,3-Dichlorobenzene	µg/L	<										
	1,4-Dichlorobenzene	µg/L	<										
	3,3-Dichlorobenzidine	µg/L	<										
	Diethyl Phthalate	µg/L	<										
	Dimethyl Phthalate	µg/L	<										
	Di-n-Butyl Phthalate	µg/L	<										
	2,4-Dinitrotoluene	µg/L	<										
	2,6-Dinitrotoluene	µg/L	<										
	Di-n-Octyl Phthalate	µg/L	<										
	1,2-Diphenylhydrazine	µg/L	<										
	Fluoranthene	µg/L	<										
	Fluorene	µg/L	<										
	Hexachlorobenzene	µg/L	<										
	Hexachlorobutadiene	µg/L	<										
	Hexachlorocyclopentadiene	µg/L	<										
	Hexachloroethane	µg/L	<										

	Indeno(1,2,3-cd)Pyrene	µg/L	<										
	Isophorone	µg/L	<										
	Naphthalene	µg/L	<										
	Nitrobenzene	µg/L	<										
	n-Nitrosodimethylamine	µg/L	<										
	n-Nitrosodi-n-Propylamine	µg/L	<										
	n-Nitrosodiphenylamine	µg/L	<										
	Phenanthrene	µg/L	<										
	Pyrene	µg/L	<										
	1,2,4-Trichlorobenzene	µg/L	<										
Group 6	Aldrin	µg/L	<										
	alpha-BHC	µg/L	<										
	beta-BHC	µg/L	<										
	gamma-BHC	µg/L	<										
	delta BHC	µg/L	<										
	Chlordane	µg/L	<										
	4,4-DDT	µg/L	<										
	4,4-DDE	µg/L	<										
	4,4-DDD	µg/L	<										
	Dieldrin	µg/L	<										
	alpha-Endosulfan	µg/L	<										
	beta-Endosulfan	µg/L	<										
	Endosulfan Sulfate	µg/L	<										
	Endrin	µg/L	<										
	Endrin Aldehyde	µg/L	<										
	Heptachlor	µg/L	<										
	Heptachlor Epoxide	µg/L	<										
	PCB-1016	µg/L	<										
	PCB-1221	µg/L	<										
	PCB-1232	µg/L	<										
	PCB-1242	µg/L	<										
	PCB-1248	µg/L	<										
	PCB-1254	µg/L	<										
	PCB-1260	µg/L	<										
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<										
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											
	PFOA	µg/L		0.011									
	PFOS	µg/L		0.027									

Stream / Surface Water Information

Neville Island Plant, NPDES Permit No. PA0091227, Outfall 002

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Ohio River**

No. Reaches to Model: **1**

- ○ Statewide Criteria
- ○ Great Lakes Criteria
- ◉ ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	032317	974.72	710	19400			Yes
End of Reach 1	032317	971.46	700	19500		7.2	Yes

Q $_{7\text{-}10}$

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	974.72	0.121	2,365			540.2	18					100	7		
End of Reach 1	971.46	0.242	4,730			1,063	18								

Q $_{h}$

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	974.72														
End of Reach 1	971.46														

Model Results

Neville Island Plant, NPDES Permit No. PA0091227, Outfall 002

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | (•) All ( ) Inputs ( ) Results ( ) Limits

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.263 Analysis Hardness (mg/l): 100.16 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	1,205,930	
Total Antimony	0	0		0	1,100	1,100	1,768,697	
Total Arsenic	0	0		0	340	340	546,688	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	33,766,035	
Total Boron	0	0		0	8,100	8,100	13,024,042	
Total Cadmium	0	0		0	2.017	2.14	3,436	Chem Translator of 0.944 applied
Total Chromium (III)	0	0		0	570.518	1,805	2,902,973	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	26,198	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	152,751	
Total Copper	0	0		0	13.460	14.0	22,543	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	64.695	81.8	131,548	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	2,648	Chem Translator of 0.85 applied
Total Nickel	0	0		0	468.876	470	755,420	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	3.226	3.79	6,102	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	104,514	
Total Zinc	0	0		0	117.341	120	192,918	Chem Translator of 0.978 applied
PFOA	0	0		0	3,100	3,100	4,984,510	
PFOS	0	0		0	71	71.0	114,161	

☑ ***CFC*** CCT (min): ###### PMF: 1 Analysis Hardness (mg/l): 100.04 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	1,345,534	
Total Arsenic	0	0		0	150	150	917,409	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	25,075,852	
Total Boron	0	0		0	1,600	1,600	9,785,698	
Total Cadmium	0	0		0	0.246	0.27	1,656	Chem Translator of 0.909 applied
Total Chromium (III)	0	0		0	74.140	86.2	527,264	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	63,577	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	116,205	
Total Copper	0	0		0	8.959	9.33	57,077	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	9,174,092	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.518	3.18	19,469	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	5,540	Chem Translator of 0.85 applied
Total Nickel	0	0		0	52.025	52.2	319,147	Chem Translator of 0.997 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	4.600	4.99	30,514	Chem Translator of 0.922 applied
Total Silver	0	0		0	N/A	N/A	N/A	Chem Translator of 1 applied
Total Thallium	0	0		0	13	13.0	79,509	
Total Zinc	0	0		0	118.182	120	733,068	Chem Translator of 0.986 applied
PFOA	0	0		0	100	100.0	611,606	
PFOS	0	0		0	0.25	0.25	1,529	

☑ ***THH*** CCT (min): ###### THH PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A PWS PMF: 1

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	##########	WQC applied at RMI 971.46 with a design stream flow of 4730 cfs
Chloride (PWS)	0	0		0	250,000	250,000	##########	WQC applied at RMI 971.46 with a design stream flow of 4730 cfs
Sulfate (PWS)	0	0		0	250,000	250,000	##########	WQC applied at RMI 971.46 with a design stream flow of 4730 cfs
Fluoride (PWS)	0	0		0	1,000	1,000	6,116,061	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	34,250	
Total Arsenic	0	0		0	10	10.0	61,161	
Total Barium	0	0		0	1,000	1,000	6,116,061	
Total Boron	0	0		0	3,100	3,100	18,959,790	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	

Total Copper	0	0		0	1,300	1,300	7,950,880	
Dissolved Iron	0	0		0	300	300	1,834,818	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	6,116,061	
Total Mercury	0	0		0	0.012	0.012	73.4	
Total Nickel	0	0		0	610	610	3,730,797	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	61,156	WQC applied at RMI 971.46 with a design stream flow of 4730 cfs
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	0.24	0.24	1,468	
Total Zinc	0	0		0	7,400	7,400	45,258,854	
PFOA	0	0		0	N/A	N/A	N/A	
PFOS	0	0		0	N/A	N/A	N/A	

CRL CCT (min): ###### PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	50	50.0	853,655	
Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	
PFOA	0	0		0	N/A	N/A	N/A	
PFOS	0	0		0	N/A	N/A	N/A	

Recommended WQBELs & Monitoring Requirements

No. Samples/Month: 4

Pollutants	*Mass Limits*		*Concentration Limits*				Governing WQBEL	WQBEL Basis	Comments
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units			

Other Pollutants without Limits or Monitoring

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	6,115,561	mg/L	Discharge Conc ≤ 10% WQBEL
Chloride (PWS)	3,057,781	mg/L	Discharge Conc ≤ 10% WQBEL
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	3,057,781	mg/L	Discharge Conc ≤ 10% WQBEL
Fluoride (PWS)	6,116	mg/L	Discharge Conc ≤ 10% WQBEL
Total Aluminum	772,952	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	6,116,061	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	8,347,885	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	1,656	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	527,264	µg/L	Discharge Conc < TQL
Hexavalent Chromium	16,792	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	97,907	µg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	14,449	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	1,834,818	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	9,174,092	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	19,469	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	6,116,061	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.012	µg/L	Discharge Conc < TQL
Total Nickel	319,147	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)	61,156	µg/L	Discharge Conc ≤ 10% WQBEL
Total Selenium	30,514	µg/L	Discharge Conc < TQL
Total Silver	3,911	µg/L	Discharge Conc < TQL
Total Thallium	1,468	µg/L	Discharge Conc < TQL
Total Zinc	123,652	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
PFOA	611,606	µg/L	Discharge Conc ≤ 25% WQBEL
PFOS	1,529	µg/L	Discharge Conc ≤ 25% WQBEL

ATTACHMENT H
Toxics Management Spreadsheet Results for Outfall 005

Discharge Information

Instructions | Discharge | Stream

Facility: **Neville Island Plant** NPDES Permit No.: **PA0091227** Outfall No.: **005**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Steam condensate, reverse osmosis reject**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.031	1200	9						

					0 if left blank		*0.5 if left blank*		*0 if left blank*			*1 if left blank*	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		11000									
	Chloride (PWS)	mg/L		7350									
	Bromide	mg/L		27.6									
	Sulfate (PWS)	mg/L		3580									
	Fluoride (PWS)	mg/L		0.35									
Group 2	Total Aluminum	µg/L		3700									
	Total Antimony	µg/L	<	0.52									
	Total Arsenic	µg/L		1									
	Total Barium	µg/L		470									
	Total Beryllium	µg/L	<	0.2									
	Total Boron	µg/L		200									
	Total Cadmium	µg/L		0.27									
	Total Chromium (III)	µg/L		0.36									
	Hexavalent Chromium	µg/L	<	6									
	Total Cobalt	µg/L		11									
	Total Copper	µg/L		12									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L		180									
	Dissolved Iron	µg/L		87									
	Total Iron	µg/L		7200									
	Total Lead	µg/L		0.65									
	Total Manganese	µg/L		12000									
	Total Mercury	µg/L	<	0.08									
	Total Nickel	µg/L		11									
	Total Phenols (Phenolics) (PWS)	µg/L											
	Total Selenium	µg/L	<	1.2									
	Total Silver	µg/L	<	0.39									
	Total Thallium	µg/L	<	0.26									
	Total Zinc	µg/L	<	10									
	Total Molybdenum	µg/L		3.8									
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										
	Carbon Tetrachloride	µg/L	<										
	Chlorobenzene	µg/L											
	Chlorodibromomethane	µg/L	<										
	Chloroethane	µg/L	<										
	2-Chloroethyl Vinyl Ether	µg/L	<										

Group 3	Chloroform	µg/L	<										
	Dichlorobromomethane	µg/L	<										
	1,1-Dichloroethane	µg/L	<										
	1,2-Dichloroethane	µg/L	<										
	1,1-Dichloroethylene	µg/L	<										
	1,2-Dichloropropane	µg/L	<										
	1,3-Dichloropropylene	µg/L	<										
	1,4-Dioxane	µg/L	<										
	Ethylbenzene	µg/L	<										
	Methyl Bromide	µg/L	<										
	Methyl Chloride	µg/L	<										
	Methylene Chloride	µg/L	<										
	1,1,2,2-Tetrachloroethane	µg/L	<										
	Tetrachloroethylene	µg/L	<										
	Toluene	µg/L	<										
	1,2-trans-Dichloroethylene	µg/L	<										
	1,1,1-Trichloroethane	µg/L	<										
	1,1,2-Trichloroethane	µg/L	<										
	Trichloroethylene	µg/L	<										
	Vinyl Chloride	µg/L	<										
Group 4	2-Chlorophenol	µg/L	<										
	2,4-Dichlorophenol	µg/L	<										
	2,4-Dimethylphenol	µg/L	<										
	4,6-Dinitro-o-Cresol	µg/L	<										
	2,4-Dinitrophenol	µg/L	<										
	2-Nitrophenol	µg/L	<										
	4-Nitrophenol	µg/L	<										
	p-Chloro-m-Cresol	µg/L	<										
	Pentachlorophenol	µg/L	<										
	Phenol	µg/L	<										
	2,4,6-Trichlorophenol	µg/L	<										
Group 5	Acenaphthene	µg/L	<										
	Acenaphthylene	µg/L	<										
	Anthracene	µg/L	<										
	Benzidine	µg/L	<										
	Benzo(a)Anthracene	µg/L	<										
	Benzo(a)Pyrene	µg/L	<										
	3,4-Benzofluoranthene	µg/L	<										
	Benzo(ghi)Perylene	µg/L	<										
	Benzo(k)Fluoranthene	µg/L	<										
	Bis(2-Chloroethoxy)Methane	µg/L	<										
	Bis(2-Chloroethyl)Ether	µg/L	<										
	Bis(2-Chloroisopropyl)Ether	µg/L	<										
	Bis(2-Ethylhexyl)Phthalate	µg/L	<										
	4-Bromophenyl Phenyl Ether	µg/L	<										
	Butyl Benzyl Phthalate	µg/L	<										
	2-Chloronaphthalene	µg/L	<										
	4-Chlorophenyl Phenyl Ether	µg/L	<										
	Chrysene	µg/L	<										
	Dibenzo(a,h)Anthrancene	µg/L	<										
	1,2-Dichlorobenzene	µg/L	<										
	1,3-Dichlorobenzene	µg/L	<										
	1,4-Dichlorobenzene	µg/L	<										
	3,3-Dichlorobenzidine	µg/L	<										
	Diethyl Phthalate	µg/L	<										
	Dimethyl Phthalate	µg/L	<										
	Di-n-Butyl Phthalate	µg/L	<										
	2,4-Dinitrotoluene	µg/L	<										
	2,6-Dinitrotoluene	µg/L	<										
	Di-n-Octyl Phthalate	µg/L	<										
	1,2-Diphenylhydrazine	µg/L	<										
	Fluoranthene	µg/L	<										
	Fluorene	µg/L	<										
	Hexachlorobenzene	µg/L	<										
	Hexachlorobutadiene	µg/L	<										
	Hexachlorocyclopentadiene	µg/L	<										
	Hexachloroethane	µg/L	<										

	Indeno(1,2,3-cd)Pyrene	µg/L	<										
	Isophorone	µg/L	<										
	Naphthalene	µg/L	<										
	Nitrobenzene	µg/L	<										
	n-Nitrosodimethylamine	µg/L	<										
	n-Nitrosodi-n-Propylamine	µg/L	<										
	n-Nitrosodiphenylamine	µg/L	<										
	Phenanthrene	µg/L	<										
	Pyrene	µg/L	<										
	1,2,4-Trichlorobenzene	µg/L	<										
Group 6	Aldrin	µg/L	<										
	alpha-BHC	µg/L	<										
	beta-BHC	µg/L	<										
	gamma-BHC	µg/L	<										
	delta BHC	µg/L	<										
	Chlordane	µg/L	<										
	4,4-DDT	µg/L	<										
	4,4-DDE	µg/L	<										
	4,4-DDD	µg/L	<										
	Dieldrin	µg/L	<										
	alpha-Endosulfan	µg/L	<										
	beta-Endosulfan	µg/L	<										
	Endosulfan Sulfate	µg/L	<										
	Endrin	µg/L	<										
	Endrin Aldehyde	µg/L	<										
	Heptachlor	µg/L	<										
	Heptachlor Epoxide	µg/L	<										
	PCB-1016	µg/L	<										
	PCB-1221	µg/L	<										
	PCB-1232	µg/L	<										
	PCB-1242	µg/L	<										
	PCB-1248	µg/L	<										
	PCB-1254	µg/L	<										
	PCB-1260	µg/L	<										
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<										
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											
	PFOA	µg/L		0.0019									
	PFOS	µg/L		0.043									

Stream / Surface Water Information

Neville Island Plant, NPDES Permit No. PA0091227, Outfall 005

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Ohio River**

No. Reaches to Model: **1**

- ○ Statewide Criteria
- ○ Great Lakes Criteria
- ◉ ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	032317	974.7	710	19400			Yes
End of Reach 1	032317	971.46	696	19500		7.2	Yes

$Q_{7\text{-}10}$

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	974.7	0.121	2,365			562	18					100	7		
End of Reach 1	971.46	0.242	4,730			1,063	18								

Q_h

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	974.7														
End of Reach 1	971.46														

Model Results

Neville Island Plant, NPDES Permit No. PA0091227, Outfall 005

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | All | Inputs | Results | Limits

Hydrodynamics

Wasteload Allocations

AFC CCT (min): 15 PMF: 0.275 Analysis Hardness (mg/l): 100.08 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	10,176,967	
Total Antimony	0	0		0	1,100	1,100	14,926,219	
Total Arsenic	0	0		0	340	340	4,613,559	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	#########	
Total Boron	0	0		0	8,100	8,100	#########	
Total Cadmium	0	0		0	2.015	2.13	28,970	Chem Translator of 0.944 applied
Total Chromium (III)	0	0		0	570.142	1,804	24,482,337	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	221,088	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	1,289,083	
Total Copper	0	0		0	13.449	14.0	190,103	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	64.638	81.7	1,109,009	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	22,349	Chem Translator of 0.85 applied
Total Nickel	0	0		0	468.557	469	6,370,726	Chem Translator of 0.998 applied
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	3.221	3.79	51,424	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	882,004	
Total Zinc	0	0		0	117.261	120	1,626,940	Chem Translator of 0.978 applied
PFOA	0	0		0	3,100	3,100	42,064,799	
PFOS	0	0		0	71	71.0	963,420	

☑ ***CFC*** CCT (min): ###### PMF: 1 Analysis Hardness (mg/l): 100.02 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	10,849,523	
Total Arsenic	0	0		0	150	150	7,397,402	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	#########	
Total Boron	0	0		0	1,600	1,600	78,905,618	
Total Cadmium	0	0		0	0.246	0.27	13,348	Chem Translator of 0.909 applied
Total Chromium (III)	0	0		0	74.128	86.2	4,250,814	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	512,640	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	937,004	
Total Copper	0	0		0	8.957	9.33	460,152	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	73,974,017	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.517	3.18	156,948	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	44,675	Chem Translator of 0.85 applied
Total Nickel	0	0		0	52.016	52.2	2,572,958	Chem Translator of 0.997 applied
Total Selenium	0	0		0	4.600	4.99	246,045	Chem Translator of 0.922 applied
Total Silver	0	0		0	N/A	N/A	N/A	Chem Translator of 1 applied
Total Thallium	0	0		0	13	13.0	641,108	
Total Zinc	0	0		0	118.161	120	5,909,984	Chem Translator of 0.986 applied
PFOA	0	0		0	100	100.0	4,931,601	
PFOS	0	0		0	0.25	0.25	12,329	

☑ ***THH*** CCT (min): ###### THH PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A PWS PMF: 1

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	#########	WQC applied at RMI 971.46 with a design stream flow of 4730 cfs
Chloride (PWS)	0	0		0	250,000	250,000	#########	WQC applied at RMI 971.46 with a design stream flow of 4730 cfs
Sulfate (PWS)	0	0		0	250,000	250,000	#########	WQC applied at RMI 971.46 with a design stream flow of 4730 cfs
Fluoride (PWS)	0	0		0	1,000	1,000	49,316,011	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	276,170	
Total Arsenic	0	0		0	10	10.0	493,160	
Total Barium	0	0		0	1,000	1,000	49,316,011	
Total Boron	0	0		0	3,100	3,100	#########	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	1,300	1,300	64,110,815	

Dissolved Iron	0	0		0	300	300	14,794,803	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	49,316,011	
Total Mercury	0	0		0	0.012	0.012	592	
Total Nickel	0	0		0	610	610	30,082,767	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	0.24	0.24	11,836	
Total Zinc	0	0		0	7,400	7,400	#########	
PFOA	0	0		0	N/A	N/A	N/A	
PFOS	0	0		0	N/A	N/A	N/A	

CRL CCT (min): ###### PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	50	50.0	6,883,961	
Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	
PFOA	0	0		0	N/A	N/A	N/A	
PFOS	0	0		0	N/A	N/A	N/A	

Recommended WQBELs & Monitoring Requirements

No. Samples/Month: 4

Pollutants	*Mass Limits*		*Concentration Limits*				Governing WQBEL	WQBEL Basis	Comments
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units			

Other Pollutants without Limits or Monitoring

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	49,315,511	mg/L	Discharge Conc ≤ 10% WQBEL
Chloride (PWS)	24,657,756	mg/L	Discharge Conc ≤ 10% WQBEL
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	24,657,756	mg/L	Discharge Conc ≤ 10% WQBEL
Fluoride (PWS)	49,316	mg/L	Discharge Conc ≤ 10% WQBEL
Total Aluminum	6,523,025	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	493,160	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	49,316,011	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	70,448,673	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	13,348	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	4,250,814	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	141,709	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	826,250	µg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	121,848	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	14,794,803	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	73,974,017	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	156,948	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	49,316,011	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.012	µg/L	Discharge Conc < TQL
Total Nickel	2,572,958	µg/L	Discharge Conc ≤ 10% WQBEL
Total Selenium	246,045	µg/L	Discharge Conc < TQL
Total Silver	32,960	µg/L	Discharge Conc < TQL
Total Thallium	11,836	µg/L	Discharge Conc < TQL
Total Zinc	1,042,803	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
PFOA	4,931,601	µg/L	Discharge Conc ≤ 25% WQBEL
PFOS	12,329	µg/L	Discharge Conc ≤ 25% WQBEL

ATTACHMENT I
TRC Modeling Results for Outfall 005

TRC EVALUATION - Outfall 005

2,365	= Q stream (cfs)	0.5	= CV Daily
0.031	= Q discharge (MGD)	0.5	= CV Hourly
4	= no. samples	0.301	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 4735.197	1.3.2.iii	WLA cfc = 15336.980
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 1764.447	5.1d	LTA_cfc = 8916.200

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.720	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) = 1.170	

WLA afc	**(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...**
	...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	**(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...**
	...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	**1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)**